



# JOHN AARTS GROUP

2023 HEALTH, SAFETY, AND ENVIRONMENTAL  
PROGRAM





The purpose of this **Health, Safety and Environmental Program** is to provide procedures and guidelines to implement and maintain the companies' policies.

The senior management of the John Aarts Group will review these policies annually and revise them when required.

A copy of the signed Health and Safety Policy will be posted at conspicuous locations in permanent workplaces and site offices, as required by legislation.

For the purposes of this Health, Safety and Environmental Program, the "JOHN AARTS GROUP" (JAG) refers collectively to all of the following companies and their employees:

J-AAR Excavating Limited  
AAROC Aggregates Ltd.  
AAROC Equipment  
Concrete Forming (1980)  
Dutch Brothers Ready Mix Ltd.

**Part 1** of this HSE Program has sections that apply to all companies operating under the JOHN AARTS GROUP.

**Part 2** of this HSE Program has sections that apply specifically to each company.





## **PART 1**

### John Aarts Group Health and Safety Program 2023

#### **Policies .....**

Health and Safety Policy

Legislation and Other Requirements Policy

Environmental and Social Sustainability Policy

Early and Safe Return to Work Policy

#### **Legislation and Other Requirements.....**

Workplace Violence and Harassment

Right to Refuse Work

Joint Health and Safety Committee

Joint Health and Safety Committee Terms of Reference

WHMIS

Reg. 1101 (First-Aid)

#### **Policies and Procedures.....**

Workplace Responsibilities

John Aarts Group Company Rules

Personal Devices/Cell Phones in the Workplace

Smoking in the Workplace

Substance Abuse Policy

Vehicles and Drivers

Personal Protective Equipment

Preventative Maintenance

Spills Policy

Incident Investigation and Reporting

Management Review

Management of Change

#### **Safe Work Practices .....**

External Factors

Ladder Use

Ramps, Platforms, Runways



Asbestos in the Workplace  
Ergonomics and Musculoskeletal Disorders  
Mounting and Dismounting Equipment  
Respirator Care, Use, Maintenance  
Silica in the Workplace  
Lock-out/Tag-out  
Hand and Power Tools  
Housekeeping  
Outside Health Hazards

## **PART 2**

### **J-AAR Excavating**

#### **Health and Safety Policies .....**

Health and Safety Policies Procedure  
Document and Record Control Procedure

#### **Hazard Assessment .....**

Hazard Assessment Policy  
Hazard Assessment and Control Procedure  
Job Hazard Analysis Procedure  
Pre-Construction Hazard Assessment Procedure  
Site-Specific Plan Procedure  
J-AAR Hazard Identification and Risk Assessment  
Safe Work Procedures

#### **Control of Hazards Policy .....**

#### **Subcontractor Management .....**

Subcontractor Management Policy  
Subcontractor Management Procedure

#### **Respiratory Protection Procedure .....**

#### **Training and Communication .....**



Communication Policy

Communication Procedure

Training Policy

Training Procedure

**Inspections .....**

Inspections Policy

Workplace Inspection Procedure

Equipment, Tools, and Vehicle Inspection Procedure

**Emergency Preparedness .....**

Emergency Preparedness Policy

Emergency Preparedness Procedure

Extreme Weather Policy

Confined Space Rescue Plan

Fall Arrest Rescue Procedures (Generic)

**Records and Statistics .....**

Records and Statistics Policy

Records and Statistics Procedure

**Legislative and Other Requirements .....**

Legislative and Other Requirements

Traffic Protection Procedure

Workplace Violence and Harassment Assessments

**Appendix A: Subcontractor Package .....**

**Appendix B: Subcontractor Evaluation Form .....**

**Appendix C: Emergency Roles Draft Sheet .....**

**AAROC Aggregates**

**Workplace Risk Assessments .....**

**Emergency Response Planning .....**

**Employee Training .....**

**Workplace Inspections .....**



Workplace Conditions .....	
Fall Protection .....	
Conveyors, Guards, and Electrical Safety .....	
Fire Prevention .....	
Hot-work .....	
Operators, Vehicles, and Equipment .....	
Pit Traffic Safety .....	
Working Face and Stockpile Safety .....	

## AAROC Equipment

Workplace Risk Assessments .....	
Emergency Response Planning .....	
Employee Training .....	
Pre-start Health and Safety Reviews .....	
Workplace Inspections .....	
Workplace Conditions .....	
Fall Protection .....	
Machine Guarding .....	
Electrical Safety .....	
Fire Prevention .....	
Hot-work .....	
Storage and Racking .....	
Forklift Operation .....	
Lock Out/Tag Out .....	
Crane Operation .....	
Field Service .....	

## Concrete Forming Limited (1980)

Policy Statement Procedure .....	
Workplace Risk Assessments .....	
Emergency Response Planning .....	
Crisis Management .....	
Hazard Assessments.....	
Employee Orientation, Education, Training .....	



Safety Meetings .....	
Occupational Health .....	
Personal Protective Equipment .....	
Heavy Equipment, Vehicles, and Preventative Maintenance .....	
Fire Prevention .....	
Public Safety .....	
Subcontractors and Suppliers .....	
Work at Heights .....	
Hoisting and Rigging .....	
Environmental Policy .....	
Waste Management .....	
Safe Work Practices .....	
Safe Work Procedures .....	

### **Dutch Brother's Ready Mix**

Workplace Assessments .....	
Emergency Response Planning .....	
Employee Safety Training .....	
Workplace Inspections .....	
Working Alone .....	
Mixer Hazards .....	
Fall Protection .....	
Operators, Vehicles, and Equipment .....	
Forklifts .....	
Electrical Safety .....	
Fire Prevention .....	
Hot Work .....	
Defensive Driving .....	
Pit and Plant Traffic Safety .....	
Construction Projects .....	
Working Face and Stockpile Safety .....	



## Health and Safety Policy Statement

The John Aarts Group, across all divisions, recognizes that all workers have the right to work in a safe, healthy work environment. As such, health and safety awareness must be integrated into all workplace activities, and we are committed to taking every reasonable precaution to protect workers from harm. We will endeavor to ensure that all John Aarts Group projects, sites and work locations meet or exceed the Occupational Health and Safety Act and all applicable Regulations.

Senior management at the John Aarts Group recognizes it has the ultimate responsibility for the health and safety of its workers and is committed to providing safe, healthy work environments for all workplace parties. To meet this goal, Senior management is committed to continual improvement of our Occupational Health and Safety Management System and will review it at least annually. As every effective Health and Safety System is based on a strong Internal Responsibility System, the John Aarts Group will work in a spirit of cooperation and consultation with workers at all levels throughout the company.

Supervisors will make every known effort to provide healthy and safe work environments. They shall be adequately trained to ensure the health and safety of workers under their supervision. They will endeavor to ensure that machinery and equipment is safe and that employees work in compliance with established safe practices and procedures and applicable legislation.

Every worker is expected to protect the health and safety of themselves, their co-workers and the general public, by working in compliance with the law and by following safe practices and procedures established by the company. All hazards must be immediately reported to supervisors so they can be corrected. Workers shall receive training for specific work tasks as applicable to protect their health and safety.

Every workplace party shares a joint responsibility in reducing and preventing incidents, injuries, diseases and illnesses. It is in the best interest of all parties to consider health and safety in every activity. Commitment to health and safety must form an integral part of this organization, from the owners to the individual workers.

Signature

February 10, 2023

Date



## **Legislation and Other Requirements Policy Statement**

The John Aarts Group is committed to meeting or exceeding all relevant legislation and requirements in our scope of work. Senior management will identify all applicable legislation, regulations, guidelines, and standards for all JAG places of business.

The John Aarts Group recognizes our responsibility to work in compliance with all legislative and other requirements. Management will ensure that all documentation required to demonstrate compliance with all requirements is completed and all required postings and supporting documentation are made available at all JAG places of business.

The John Aarts Group health and safety team will enact a system to ensure timely evaluations of compliance are carried out by performing periodic inspections of all projects, worksites, plants, and offices. During these inspections health and safety will check for compliance of all required postings, documentation, and ensure that all JAG policies and procedures are carried out in compliance with all relevant requirements.

Signature

February 10, 2023

Date



## Environmental and Social Sustainability Policy

At the John Aarts Group we strive to apply environmental and social sustainability principles wherever and whenever possible. Sustainability can be broadly defined as ***“meeting the needs of the present generation without compromising the ability of future generations to meet their own needs”***. Following this principle will help contribute positively to the environment and society and at the same time, provide long-term economic benefits to future generations.

Environmental sustainability ensures that natural resources are preserved, the environment is protected, the economy isn't harmed, and the quality of life for people is improved or maintained. We strive to use “green” solutions when possible.

Social sustainability considers the practices and policies that are best for all people connected with the company; from workers to community members. A socially sustainable company aims to cultivate diversity, quality of life, equity, and leadership. It encompasses human rights in all its operations and business decisions.

The John Aarts Group is committed to:

- Following legislative and regulatory procedures and practices;
- Creating environmental and social awareness in our operations and among our staff;
- Using effective waste management plans to encourage reduction and recycling;
- Conserving natural resources, especially aggregates;
- Using innovative ways to minimize our footprint at each work site;
- Respecting our employees' diverse talents, initiative and leadership;
- Providing a safe and healthy workplace;
- Supporting communities where we operate;
- Offering equal employment opportunities and
- Providing training on our environmental and social responsibilities to our employees.

The management of John Aarts Group will be responsible for adopting and enforcing this policy. Management will also endeavor to create an environment where its employees will feel comfortable carrying out environmental and social sustainability policies and procedures.

Signature

February 10, 2023

Date





## Return to Work Policy Statement

The John Aarts Group recognizes that our employees are our most important assets. As such, we are committed to providing a safe and healthy workplace. The Return to Work (RTW) Policy is designed for workers who have been injured on the job and aims to safely return workers to employment at the earliest possible date following an injury or illness. This policy is compliant with applicable Ontario WSIB guidelines and human rights legislation.


JAG is committed to a return to work or work reintegration program as appropriate and as early as possible, that will consider the employee's dignity and support the employee in the transition period following their injury or illness.

JAG is committed to addressing any barriers to the employee's successful return to work or work reintegration and to providing any needed interventions.

Signature

February 10, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Return to Work</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 5	

## RETURN TO WORK PROCEDURE

### PURPOSE

John Aarts Group recognizes that our employees are our most important assets. As such, we are committed to providing a safe and healthy workplace. The Return to Work (RTW) Policy is designed for workers who have been injured on the job and aims to safely return workers to employment at the earliest possible date following an injury or illness. This policy is compliant with applicable Ontario WSIB guidelines and human rights legislation.

### DEFINITIONS

#### Accommodation

Any modification to the work or the workplace, including but not limited to reduced hours, reduced productivity requirements, or the provision of assistive devices, that results in work becoming available that is consistent with the worker's functional abilities and that respects applicable human rights legislation.

#### Productive

Whether the work produces an objective benefit to the employer's business.

#### Work

Includes the combining of tasks and duties which together may constitute temporary work.

#### Suitable Occupation

Jobs suited to a worker's transferable skills that are safe, consistent with the worker's functional abilities, and that to the extent possible restore the worker's pre-injury earnings.

### SCOPE

In the event of an accident in the workplace, employees must report the incident immediately. If the injury causes the employee to require substantial time away from work or creates a disability that restricts their ability to work, the employee should return to work as soon as it is safe to do so under the guidelines of this policy.


In accordance with legislative and company requirements it is mandatory that all employees participate in the return-to-work program. It is also mandatory that all employees who sustain a work-related injury report the incident in accordance with protocol.

For the company to properly implement the RTW Policy, it is important that employees provide detailed medical documentation pertaining to their inability to perform their employment duties, so that alternatives may be found. This includes a functional abilities form filled in by their doctor to provide guidelines as to the work that an employee can perform.

#### Work Reintegration

Work reintegration is a process that begins as soon as the John Aarts Group is aware of a work-related injury or illness. The work reintegration process must continue throughout the recovery period and must be adapted to each individual employee and situation.

Work reintegration is available for injured employees and employees struck by an occupational illness. In the case of an illness, the work reintegration program commences once the employee is functionally fit to report for work and

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Return to Work</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 5	

## RETURN TO WORK PROCEDURE

includes goals and timelines for recovery. Information in the work reintegration program should be gathered from the employee, employer, doctors, and WSIB contacts. The program must be shared between these parties as needed.

Statutory requirements for the work reintegration program include the values of co-operation (among all parties) and re-employment for the employee. If a suitable return to work or work reintegration assignment cannot be found, John Aarts Group is committed to the retraining of the employee in a different, but still suitable, position. The company will consult with the WSIB for a suitable position and provide any needed information to the WSIB so that the employee is informed of the details and has a choice in their assignment (where possible).

The work reintegration program is not limited to employees who have been absent from their workplace. It also applies to employees who have remained at work but have had accommodations created for them during their recovery period.

The work reintegration program is required until the employee returns to their pre-injury position, or the employee is awarded damages for any loss of earnings if they had to switch positions (for example, a lesser wage).

In any cases where the company or employee does not meet the stated requirements for the work reintegration program, the WSIB may reduce or suspend the employee's benefits or levy a monetary penalty on the employer. The company and employees may rely on the WSIB for any support required in the work reintegration period. In keeping with their Guiding Principles, the WSIB will schedule a meeting with the involved parties at a date that is not later than 12 weeks following the date of the employee's injury (if the employee has not returned to work in any capacity).


In a case where the employee and John Aarts Group have difficulty establishing an appropriate return to work program, the WSIB will provide dispute resolution to help and facilitate communication. In addition, the WSIB has services including proactive education, case management support, accommodation assistance, and disability management program counsel.

### PROCEDURE

#### **Procedures - In case of injury at work**

##### **The injured worker:**

1. Report the injury to your supervisor if able;
2. Get first aid immediately if needed;
3. Get medical care from a doctor or health care provider if required. The employer pays for transportation;
4. Accurately report the nature and circumstances of the injury to the doctor. A "Form 8" will be provided by the doctor;
5. If **able** to return to normal work duties that day or the next day with no restrictions, give the Form 8 to your supervisor when you return to work.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Return to Work</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 5		

## RETURN TO WORK PROCEDURE

6. If **unable** to return to normal work duties that day or the next because of restrictions, contact the office right away. The office will review the "Form 8" and develop a modified work plan if possible.

### **The supervisor:**

1. Provide first aid immediately to the injured worker;
2. Transport worker to get medical care if required;
3. Report the injury to the main office;
4. Complete an Incident Report describing the nature and circumstances of the injury the same day;
5. If worker returns to normal work duties that day or the next day, review Form 8 from the doctor confirming they are able to perform their regular duties. Forward the Form 8 to the main office.

### **In the case of injury that prevents the worker from returning to regular work duties:**

### **The employer will:**

1. Forward all appropriate documents to the WSIB within the prescribed time;
2. Request and review a "Functional Abilities Form" (FAF) from health care professional and determine what type of suitable work is available for the injured worker;
3. Create a modified work plan and present it to the injured worker for acceptance.

### **What are functional abilities and how are they determined?**

The term "functional abilities" refers to what the injured worker is physically capable of doing. The doctor or other health care professional initially provides this information on the Form 8 (Health Professional's Report) After the initial visit:

- The doctor provides updated information about the functional abilities on a WSIB Functional Abilities Form (FAF) when the worker or employer requests it.
- It is extremely important that the Form 8, FAF and any other medical reports, accurately state what the worker is capable of doing. **If work is refused that is within the functional abilities set out in these reports, they will be treated as un-cooperative and their benefits may be reduced or taken away.**

### **WSIB Decision (if required):**

- If JAG and the effected employee cannot come to a modified agreement/appropriate new position the WSIB may get involved and levy a decision on the situation


### **Employee Returns to Regular Duties:**

- In most situations the return-to-work policy is a short term solution and the employee can resume their normal duties after a sufficient amount of recovery time. Once they are capable of returning to their regular duties employees will leave the work reintegration program and resume their regular duties.

## RESPONSIBILITIES

### **Senior Management:**

- Cooperate with the RTW policy and procedure
- Review the procedure at least annually

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Return to Work</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 5		

## RETURN TO WORK PROCEDURE

- Allow for suitable modified work
- Assist Health and Safety/HR in developing suitable modified work

### Supervisors:

- Maintain and document all contact conducted throughout the employee's absence.
- Identify employment opportunities based on the returning employees' abilities and limitations.
- Establish a timeline for the return of the absent employee, and any changes in their ability to work.
- Take an active part in the planning and implementation of return-to-work arrangements for the employee

### Workers:

- helping your employer, if asked, to find appropriate employment
- giving the WSIB any information requested
- attending health examinations as directed by the WSIB
- informing the WSIB about any change in circumstances

### Health and Safety Team /Human Resources:

- Establish and maintain communication with employees who are absent due to a workplace injury.
- Request that the employee produce documentation from their physician to establish their physical and mental abilities and any information on limitations resulting from the injury through the completion of a functional abilities form.
- Coordinate and implement the RTW process.
- Provide the absent employee with information regarding the RTW process, and ensure that they understand the procedures and their responsibilities.
- Communicate with the employee, union or association, supervisor, and attending physician to ensure a complete understanding of the absent employee's abilities, possible job restrictions, the physical job demands required, and a timetable for a return to work.
- Attempt to find an appropriate job match if an injured employee cannot return to their pre-injury position.

### Health and Safety Committee/Rep:

- Review policies and procedures as required
- Assist with investigations when required


### Subcontractors:

- Review policies and procedures as required
- Assist with investigations when required

### Visitors:

- Review policies and procedures as required
- Assist with investigations when required

## REQUIREMENTS

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Return to Work</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 5		

## RETURN TO WORK PROCEDURE

### Documentation:

- Corporate Hazard Identification and Risk Assessment Matrix
- Site Specific Safety plan
- Job descriptions
- FAF's
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Mining Regulation 854/90
- Industrial Regulation 851/90

### DOCUMENT CONTROL

All documents and records generated for this procedure will be stored indefinitely on the HCSS or John Aarts Group servers. They can be accessed by management at anytime.

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by John Aarts Group.

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.



## Violence and Harassment Policy Statement

The John Aarts Group is committed to building and preserving a safe working environment for its employees. In pursuit of this goal, JAG will work to prevent acts of violence, harassment, and sexual harassment on John Aarts Group premises, in compliance with the *Occupational Health and Safety Act*.

As such, the John Aarts Group has adopted policies prohibiting physical or verbal threats (with or without the use of weapons); intimidation; inappropriate comments relating to sex, sexual orientation, gender identity, or gender expression; and violence in the workplace to minimize risk of injury or harm resulting from violence to John Aarts Group employees.

JAG will conduct violence risk assessments as often as necessary. In addition, JAG will provide appropriate training on violence, harassment, and sexual harassment in the workplace to all staff. JAG will fully investigate all incidents or complaints of violence, harassment, or sexual harassment in the workplace and will communicate the results of all investigations to the involved employees. All complaints will be handled with confidentiality, in compliance with the Act.


The John Aarts Group does not condone domestic violence and will work to assist and protect any staff members who may be subject to domestic violence.

It is a violation of this policy for anyone to knowingly make a false complaint of harassment or violence, or to provide false information about a complaint. Individuals who violate this policy are subject to disciplinary and corrective action, up to and including termination of employment.

Signature

February 10, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Violence and Harassment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 7	

## WORKPLACE VIOLENCE AND HARASSMENT PROCEDURE

### PURPOSE

The John Aarts Group is committed to building and preserving a safe, productive, and healthy working environment for its employees, free from violence and harassment. The company will take all reasonable measures to ensure job candidates, employees, managers, and clients are not subject to any form of violence or harassment. This commitment applies to all areas of business, including training, performance, assessment, promotions, transfers, layoffs, remuneration, and all other employment practices and working conditions.

### DEFINITIONS

#### Complainant

A person who has made a complaint about another individual who they believe committed an act of violence or harassment against them.

#### Respondent

A person whom another individual has accused of committing an act of violence or harassment.

#### Workplace Harassment

Engaging in a course of vexatious comment or conduct against a worker in a workplace because of sex, sexual orientation, gender identity, or gender expression, where the course of comment or conduct is known or ought reasonably to be known to be unwelcome, or making a sexual solicitation or advance where the person making the solicitation or advance is in a position to confer, grant, or deny a benefit or advancement to the worker and the person knows or ought reasonably to know that the solicitation or advance is unwelcome.

#### Workplace Sexual Harassment

Engaging in a course of vexatious comment or conduct against a worker in a workplace because of sex, sexual orientation, gender identity, or gender expression, where the course of comment or conduct is known or ought reasonably to be known to be unwelcome, or making a sexual solicitation or advance where the person making the solicitation or advance is in a position to confer, grant, or deny a benefit or advancement to the worker and the person knows or ought reasonably to know that the solicitation or advance is unwelcome.

#### Workplace Violence

The exercise of physical force by a person against a worker, in a workplace, that causes or could cause physical injury to the worker; an attempt to exercise physical force against a worker, in a workplace, that could cause physical injury to the worker; or a statement or behaviour that is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker.


### SCOPE

Acts of violence or harassment against or by any employee will not be condoned or tolerated by the company. This document outlines the John Aarts Group violence and harassment program, including how incidents of violence and harassment will be handled and investigated.

This policy has been developed in consultation with the JHSC and will be reviewed as often as necessary to ensure that it accurately represents the John Aarts Group prevention program.

The John Aarts Group will provide all employees with appropriate training and information regarding the company's violence and harassment prevention practices and procedures. Employees are responsible for adhering to this policy.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Violence and Harassment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 7	

## WORKPLACE VIOLENCE AND HARASSMENT PROCEDURE

and should report every incident of violence or harassment immediately to management. This includes any incidents that have been witnessed, experienced by, or reported to an employee.

For the purposes of this policy, workplace harassment or violence can occur:

- At the workplace;
- At employment-related social functions;
- In the course of work assignments outside the workplace;
- During work-related travel;
- Over the telephone, if the conversation is work-related; or
- Elsewhere, if the person is there as a result of work-related responsibilities or a work-related relationship.

Reasonable day-to-day actions by a manager that help manage, guide, or direct workers or the workplace and appropriate employee performance reviews, counselling, or discipline by a manager do not constitute harassment.

### **Violence Risk Assessment**

The John Aarts Group will conduct a risk assessment of the work environment to identify potential risks that could affect the organization and the health and safety of employees and will institute measures to eliminate or control any identified risks to employee safety.

The following factors will be considered during the assessment:


- Past incidents of violence;
- Violence that is known to occur in similar workplaces;
- The circumstances in which work takes place, including the type of work and conditions of work;
- The interactions that occur in the course of performing work; and
- The physical location and layout of the workplace.

The risk assessment may include reviews of records, employee incident reports, health, and safety inspection reports, first aid records, or other related records. Areas that will be considered and may contribute to risk of violence include but are not limited to contact with the public, exchange of money, receiving doors, and working alone or at night.

The company will disclose information to workers who are likely to encounter a known person with a history of violence in the performance of their job duties, or if there is a potential risk of workplace violence as a result of interactions with the person with a history of violence. However, the company will only disclose personal information that is deemed reasonably necessary to protect the worker from physical harm.

### **Immediate Assistance Procedures**

The following measures and procedures should be followed when an incident of violence has occurred or is likely to occur and immediate assistance is required:

 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Violence and Harassment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 7	

## WORKPLACE VIOLENCE AND HARASSMENT PROCEDURE

- Place an immediate call to emergency services by dialing 911.
- Contact your supervisor or manager
- When the violence and the risk assessment has warranted it – or when emergency circumstances have dictated it – JAG will provide security through a third-party provider.

### Investigation Procedures

Once a complaint has been received, the John Aarts Group will complete a thorough investigation. The organization will ensure that, where practicable, the investigation is completed within 90 days of the complaint being filed.

The investigation will include:

- Informing the respondent of the complaint;
- Interviewing the complainant and any persons involved in the incident;
- Identifying and interviewing any witnesses; and
- Obtaining statements from all parties involved.

All of the above information will be documented and used to determine whether an incident of violence or harassment occurred. If necessary, the John Aarts Group may employ outside assistance or request the use of legal counsel. No unnecessary workplace parties will be involved in investigations nor will they be provided with any identifying information of the parties involved.

A copy of the complaint, detailing the complainant's allegations will be provided to the respondent, who will be invited to reply in writing to the complainant's allegations. The reply will be made known to the complainant before the case proceeds.


The company will take all measures to prevent any disclosure of the incident and the identities of the parties involved, unless the disclosure is necessary for the investigation, for taking corrective action or required by law.

### Results of Investigation

Upon completion of an investigation, the John Aarts Group will provide both the complainant and respondent a written summary of the findings of the investigation and any corrective action that has been or will be taken as a result of the investigation. This written notification will be provided within 7 days of the investigation being completed and will not include the investigation report unless required by law.

### Control Measures

Where the John Aarts Group determines that violence or harassment has occurred, control measures will be implemented to eliminate or control the risk of violence or harassment to a worker as a result of the investigation. These control measures will be determined on a case-by-case basis, depending on the situation investigated. Any

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Violence and Harassment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 7	

## WORKPLACE VIOLENCE AND HARASSMENT PROCEDURE

control measure enacted will be communicated to the complainant and respondent, as well as any other employees the measure effects.

### Disciplinary Measures

Any disciplinary action will be determined by Senior Management and will be proportional to the seriousness of the behaviour or action involved in the incident.

If the company determines that an employee has been involved in an incident of violence or harassment towards another employee, immediate disciplinary action will be taken, up to and including immediate dismissal.

#### Domestic Violence

If the John Aarts Group becomes aware that domestic violence is likely to expose an employee to physical injury in the workplace, the company will take every precaution reasonable in the circumstances for the protection of the worker.

### Recommendations to Victims

The company will provide appropriate assistance to any employee who is a victim of violence or harassment. The John Aarts Group recommends that a worker who has been harmed as a result of an incident of violence at the workplace consult their health care provider for treatment or referral for post-incident counselling, if appropriate.

#### The Right to Refuse Unsafe Work


Employees have the right to refuse work if they have a reason to believe that workplace violence is likely to endanger them. Upon refusing to work, the employee must report the circumstance of the refusal to their supervisor. An investigation will follow in accordance with the JAG work refusal policy and all relevant legislation.

### Fraudulent or Malicious Complaints

It is a violation of this policy for anyone to knowingly make a false complaint, or to provide false information about a complaint. Unfounded or frivolous allegations may cause both the respondent and the company significant damage. Any employee who knowingly makes a false allegation related to violence or harassment will be subject to immediate disciplinary action, up to and including termination of employment.

### Confidentiality

The John Aarts Group will not disclose the name of a complainant or a respondent or the circumstances related to the complaint to any person except where disclosure is necessary to investigate the complaint or take corrective action with respect to the complaint or required by law. The company will only disclose the minimum amount of personal information or details necessary for these purposes.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Violence and Harassment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 7	

## WORKPLACE VIOLENCE AND HARASSMENT PROCEDURE

All records of harassment, and subsequent investigations, are considered confidential and will not be disclosed to anyone except to the extent required by law. The company will do everything reasonably possible to protect the privacy of any individuals involved and to ensure that complainants and respondents are treated fairly and respectfully.

### PROCEDURE

#### **Violence Risk Assessment:**

- It is standard practice for JAG to perform a violence risk assessment for all places of business. Whether or not a complaint has been made.
- If the risk assessment warrant's it, JAG will provide additional controls to keep employees safe

#### **Complaint Received:**

- JAG receives a complaint either directly from the complainant or from a JAG supervisor or manager

#### **Investigation Launched:**

- Informing the respondent of the complaint;
- Interviewing the complainant and any persons involved in the incident;
- Identifying and interviewing any witnesses; and
- Obtaining statements from all parties involved

#### **Investigation Results:**

- Based on the results of the investigation JAG will implement controls and make recommendations to ensure no similar complaint is made again
- If the complaint has been found to be fraudulent or malicious, disciplinary action could be taken

### RESPONSIBILITIES

#### **Senior Management:**


- Ensure the workplace violence and harassment policy and procedure is prepared, reviewed, and updated at least annually
- Ensure the policy and procedure is communicated to all staff
- Ensure the risk assessment is completed by JAG health and safety
- Ensure all subcontractors and visitors are made aware of this policy and procedure
- Ensure any training identified as useful by JAG health and safety/HR is made available to employees
- Ensure the reporting, investigation, and documenting of incidents are functioning and in place
- Report any incident to the police, MLTSD when required
- Take corrective actions and monitor their efficacy

#### **Supervisors:**

- Report any incident to your manager
- Report any incident to the police, MLTSD when required
- Ensure all workplace parties are made aware of this policy and procedure

#### **Workers:**

- Provide input into the violence risk assessment
- Attend training when required
- Provide input on how this policy can be improved when requested

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Violence and Harassment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 7	

## WORKPLACE VIOLENCE AND HARASSMENT PROCEDURE

- Report all incidents to your supervisor or directly to JAG management
- Assist with investigations when required

### Health and Safety Team:

- Conduct violence risk assessments for each JAG place of business
- Assist/conduct investigations when required
- Schedule any required training
- Assist in the review of this policy and procedure

### Health and Safety Committee/Rep:

- Review policies and procedures as required
- Assist with investigations when required

### Subcontractors:

- Review policies and procedures as required
- Assist with investigations when required

### Visitors:

- Review policies and procedures as required
- Assist with investigations when required

## REQUIREMENTS

### Documentation:

- Corporate Hazard Identification and Risk Assessment Matrix
- Site Specific Safety plans
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Mining Regulation 854/90

### Training:


- Hazard recognition and control
- Job Hazard Analysis
- Responsibilities as per legislation and the OHSMS
- Site specific safety plans

## ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by JAG.

## REVIEW


In accordance with the *Occupational Health and Safety Act*, this policy will be posted in a conspicuous place in the workplace and reviewed annually.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Violence and Harassment</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13
	APPROVAL DATE: February 10, 2023		DATE OF ORIGIN: 02/02/2023
			REVISION # 1
	# OF PAGES: 7		

## WORKPLACE VIOLENCE AND HARASSMENT PROCEDURE

### DOCUMENT AND RECORD CONTROL

All documents and record generated from this procedure will be stored indefinitely on HCSS or JAG servers indefinitely.

 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Work Refusals</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13, 8
	APPROVAL DATE: February 10, 2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: <i>Ryan Aarts</i>		REVISION # 1
		# OF PAGES: 2	

## WORK REFUSAL PROCEDURE

### PURPOSE

John Aarts Group recognizes and supports all workers' rights to refuse work based on health and safety concerns.

A worker has the right to refuse work when he/she has reason to believe that:

- Any equipment, machine, device or thing the worker is to use or operate is likely to endanger himself, herself or another person.
- The physical condition of the workplace in which he or she works is likely to endanger them or another person.
- Workplace violence is likely to endanger himself or herself.
- A contravention of the O.H.S.A. and Regulations exists, and that contravention is likely to endanger that worker

Also, company policy states that if through lack of experience they are not competent to do a task safely, they may refuse work.

The worker should first speak with the supervisor or H&S Representative to try and resolve the problem before starting a Work Refusal process.

### PROCEDURE

#### First Stage


1. Worker considers work unsafe.
2. Worker reports refusal to his/her supervisor or employer. Worker may also wish to advise the H&S representative. Worker stays in safe place.
3. Employer or supervisor investigates in the presence of the worker and the H&S representative.
4. Either:
  - a. Issue resolved. Worker goes back to work.
  - b. Issue not resolved. Proceed to the second stage

#### Second Stage

1. With reasonable grounds to believe work is still unsafe, worker continues to refuse and remains in safe place. Worker or employer or someone representing worker or employer calls MOL.
2. MOL Inspector investigates in company of worker, H&S representative and supervisor or management representative.\*
3. Inspector gives decision to worker, management representative/supervisor and H&S representative in writing.
4. Changes are made if required or ordered. Worker returns to work

#### \*Pending MILTSD Investigation

- The refusing worker may be offered other work if it doesn't conflict with a collective agreement
- Until the investigation is complete, the worker shall remain in a safe place that is near as reasonably possible to his work station and be available to the employer for the purposes of the investigation.
- Refused work may be offered to another worker, but management must inform the new worker that the offered work is the subject of work refusal. This must be done in the presence of:
  - a member of the joint health and safety committee who represents workers; or

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Work Refusals</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13, 8	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aarts</i>	# OF PAGES: 2	


## WORK REFUSAL PROCEDURE

- a health and safety representative, or
- a worker who because of his or her knowledge, experience and training is selected by the trade union that represents the worker or, if there is no trade union, by the workers to represent them.

### LEGISLATION

Occupational Health and Safety Act, Section 43



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: JOINT HEALTH AND SAFETY COMMITTEE</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aarts</i>	# OF PAGES: 7	

## JOINT HEALTH AND SAFETY COMMITTEES

### PURPOSE

The purpose of the Joint Health and Safety Committee is to ensure that location specific health and safety concerns are communicated between workers and management.

### SCOPE

Joint Health and Safety Committees are legislated in all work locations which regularly employ 20 or more people, with some exceptions. When this threshold is met the John Aarts Group will ensure JHSC's are established and maintained as per the Act and company policies.


### Internal Responsibility System

Worker participation is a key pillar in the internal responsibility system (IRS). The JHSC and worker health and safety representatives are key worker voices. The JHSC, in particular, is a powerful tool for management and workers in hearing each other and dealing with health and safety concerns. Certified members are given powers, responsibilities, and duties outlined under Section 9 of the Occupational Health and Safety Act.

### Requirements for JHSC

Joint health and safety committees are required for any workplace that regularly employs 20 or more people, with some exceptions. Workplaces that regularly employ 6 to 19 employees are required to have an elected worker health and safety representative. The following chart has been created by the government of Ontario and applies to all workplaces:

No. of Workers	Legislative requirement
1 to 5	You are not required to have a JHSC or a health and safety representative unless a designated substance regulation applies to your workplace.
6 to 19	You are required to have one health and safety representative who is selected by the workers they represent. If a designated substance regulation applies to your workplace, you are required to have a JHSC.
20 to 49	You are required to have a JHSC. The committee must have at least two (2) members.
50 plus	You are required to have a JHSC. The committee must have at least four (4) members.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: JOINT HEALTH AND SAFETY COMMITTEE</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aaris</i>		# OF PAGES: 7

## JOINT HEALTH AND SAFETY COMMITTEES

### Considerations:

- Construction projects which are not scheduled to last more than three months are not required to have a JHSC
- Some workplaces with under 20 workers require a committee due to designated substances
- The MLTSD can order the creation of a JHSC

### Membership:

- Section 9 of the Act identifies the minimum requirements and procedures. The JAG health and safety team and management will ensure that all workplaces have compliant committees when required. The composition of these JHSC's may vary depending on the location.
- Worker members must be elected by their workers or through their respective union procedures. Worker members must not exercise any managerial function.
- Management members can be selected by senior management.
- JHSC member names, position, and contact information are required postings at worksites

### Certification:

- At least one employee representing workers and one representing management, must be certified. Certification is done in two steps and is governed by the MLTSD. Training must be completed by an approved provider.
- When electing members previous certification should be taken into consideration.
- If no worker member is certified, one ought to be designated for certification at the first meeting.

### Terms of Reference:

At the first meeting of the JHSC, the "Joint Health and Safety Committee – Terms of Reference" should be reviewed and agreed upon by all members. If there is a dispute on procedure, duty, or definition, the JHSC will vote on making a change and vote on proposed changes.

The company recognizes and supports the powers of the J.H.S.C. members given under the OHSA. The J.H.S.C. members have the power to:


1. Identify workplace hazards
2. Obtain information from the company
3. Be consulted about workplace testing
4. Make recommendations to the company
5. Investigate work refusals
6. Investigate serious incidents – fatalities & critical injuries
7. Request information from the WSIB

### Meetings

The meeting schedule of the JHSC will be voted on at the first meeting. Committees are required to meet at least quarterly.

- J-AAR recognizes that it is best practice in construction to hold meetings monthly. This ensures that the legislated minimum requirements are met even if the odd meeting is missed. Committee's will be setup accordingly.
- Dutch Brothers Ready Mix has agreed to a bi-monthly schedule.
- The Corporate JAG JHSC is held quarterly.

All meetings should have:

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: JOINT HEALTH AND SAFETY COMMITTEE</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aarts</i>	# OF PAGES: 7	

## JOINT HEALTH AND SAFETY COMMITTEES

- An agenda which is circulated to all members prior to the meeting date
- Accurate meeting minutes which are circulated to all members within 2 days after the meeting.
  - All meeting minutes should be signed off on by chairpersons after review
  - Approved minutes are a posting requirement on respective health and safety boards

### Recommendations

A formal recommendation from the JHSC is a legislated system in place to ensure workplace health and safety concerns are heard and addressed by management. This formal process puts the onus on management to review the recommendations, make a decision, and respond within 21 days.

JAG has a healthy internal responsibility system which leads to most health and safety concerns being resolved in a quick and timely manner, without the need for formal recommendations.

If however, something gets overlooked or workers are unhappy with how a concern has been addressed, the option to enact a formal recommendation is available to any member of the committee.

Once management has received the recommendation, it has 21 days to respond.

## PROCEDURE

### Creation of the JHSC:

- The workplace now employs 20 or more people
- The workplace is not a construction project expected to last less than three months
- The workplace has been ordered to create a JHSC
- The workplace is required to have a JHSC due to the presence of designated substances

### Election of Members:

1. Notice will be sent to all workplace parties (union worker members can be appointed through the union).
2. If available at least one member from workers/management must be certified

The committee must be composed so management members are less to or equal to that of the workers

### Communication:

- The names, titles, and contact information for all JHSC members will be posted on the safety board

### Training/Designated member to be certified:

- If there are no/not enough certified members for the workers side, workers shall designate a member to become certified

### Designation of Certified Members:

- One or more certified members from both sides will be designated. The designated worker rep will become solely entitled to exercise the duties and responsibilities laid out in the Act

### JHSC Terms of Reference Reviewed, Agreed upon, Signed by all Members:


- The JHSC terms of reference and JHSC procedures will be reviewed the by JHSC, agreed upon, and signed, by all members.
- If there is a disagreement, a vote will be carried out to determine an amended term

### Meeting Schedule Proposed and Voted on:

- At the first meeting of the JHSC a meeting schedule will be proposed and voted on
- When agreed upon, it will be signed by all members
- Meetings must take place at least quarterly. JAG recommends monthly meetings. This ensures that if a meeting is missed for whatever reason, the minimum requirements are still met

### Meeting and Documentation:

- At each meeting certain documents should be generated

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: JOINT HEALTH AND SAFETY COMMITTEE</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Arts</i>	# OF PAGES: 7	

## JOINT HEALTH AND SAFETY COMMITTEES

1. Meeting Agenda
  - An agenda should be prepared before each meeting with standing items, old business, and new business to discuss
2. Meeting Minutes
 

Accurate meeting minutes should be kept
3. Recommendations
  - When the committee makes a formal recommendation, legally management is now compelled to give a response within 21 days
4. Response
5. Work Refusal
  - If a work refusal occurs, the designated worker member must take part and conduct an investigation

### **Workplace Inspections:**

- The JHSC worker reps must conduct monthly workplace inspections. If scheduling allows this should take place shortly before the meeting.



## JOINT HEALTH AND SAFETY COMMITTEE - TERMS OF REFERENCE

### **Purpose of the Committee**

The purpose of the Joint Health and Safety Committee is to ensure that location specific health and safety concerns are communicated between workers and management.

### **1. Composition of the Committee**

- 1.1 The composition of the committee will vary depending on location of work and the number of regularly employed people at the location
- 1.2 Every committee will consist at a minimum of (1) worker member and (1) management member. JAG supports all interested workers becoming involved in the JHSC. The committee can have any number of members, as long as it is composed in such a way that management never has more members than workers
- 1.3 Selection of members -- Worker members, co-chair, and certified members must be elected by the workers or through their respective union procedures (if union is present). Worker members must not exercise any managerial function. Management members, co-chair, and certified members can be selected by management
- 1.4 There shall be two co-chair persons – one management and one worker
- 1.5 The co-chairs will rotate to the chairs' position every meeting

### **2. Function of the Joint Health and Safety Committee**

#### **2.1 It is the function of the Committee to:**

- (a) Identify, evaluate and make recommendations concerning workplace health and safety issues;
- (b) Participate in workplace inspections, investigations, testing and work refusals.
- (c) Be consulted about and provide input into workplace health and safety programs;
- (d) Discuss other workplace health and safety issues and reports as appropriate.
- (e) Make formal recommendations to management to enhance the internal responsibility system and improve the health and safety program.
- (f) Promote the concept of Internal Responsibility System and the contributive responsibility all workers to ensure a safe working environment.
- (g) Act as an advisory body to help identify, evaluate and recommend resolution of matters pertaining to health and safety to Administration.

#### **2.2 Inspections**

- (a) Worker members will designate one or more members to conduct a monthly workplace inspection
- (b) All committee members who have been designated to conduct inspections will review and approve the inspection report before it is sent to supervision
- (c) A copy of the most recent inspection will be available for all workers to review
- (d) All inspections will be saved on the JAG/HCSS server upon completion

#### **2.3 Recommendations of the Committee**

- (a) The Committee will document any recommendations through the HCSS app. This will ensure that the appropriate members of management can review it as quickly as possible
- (b) Management will provide a written response to any recommendations with 21 days. This response will include a timetable/action plan for any agreed upon recommendations and the reasons for disagreement for any recommendations that are not agreed upon

#### **2.4 Incident Investigations**

- (a) All required incident information will be provided to the co-chairs on a regular basis.



- (b) When a worker is critically injured or killed at a workplace the worker members will designate one or more members to conduct and investigate per JAG's incident and investigation procedures
- (c) The findings will be provided to the committee, management, and the MLTSD as required.
- 2.5 Ministry Inspections – A designated worker and management member are to be notified when any MLTSD inspector is conducting an inspection at the workplace. The co-chairs will ensure all MLTSD orders are distributed to the committee and posted at the worksite
- 2.6 Work Refusals – A designated worker member will be notified and attend a work refusal

### **3. Meetings**

- 3.1 Frequency – The committee will establish a meeting schedule at the first meeting and confirm the schedule annually.
- 3.2 Co-Chair – The worker co-chair and management co-chair may alternate duties as chairperson
- 3.3 Quorum – Full participation of all members is encouraged. Regular member attendance is a crucial part of the successful functioning of the JHSC. Members who cannot attend a particular meeting they should try and arrange for an alternate/designate to attend. A quorum for committee meetings will consist of a minimum of 2 worker members and 1 management member, with at least one present member being a co-chair. The number of management members must never exceed the number of worker members. If quorum is not reached the meeting should be postponed until such a time as it can be reached.
- 3.4 Attendance
  - (a) Should a member miss three consecutive meetings they will be contacted by their co-chair to see if they are still willing and able to carry on their duties as a member
  - (b) Members who go on leave are expected to step down from the committee. They will be able to rejoin the committee upon their return
- 3.5 Agenda Items
  - (a) Co-chairs will prepare the agenda for each meeting and ensure that it is circulated in advance of the meeting
  - (b) The items will consist of workplace health and safety issues. Agenda items should be dealt with by consensus. When this cannot happen, it should be noted in the minutes
- 3.6 Minutes – Accurate minutes of the meeting will be recorded. They will be circulated to all members within three days of the meeting taking place. The most recent meeting minutes will be posted on workplace health and safety boards.
- 3.7 Decision Making – Every effort should be made to deal with meeting items through consensus. When this is not possible and quorum exists, a vote may be required. Votes will be determined by simple majority. All present members must vote.
- 3.8 Incident Investigation/information – Information regarding incidents which take place at the workplace will be provided to the JHSC in a timely manner. The information will be prepared by the health and safety team. Where there is a need for an investigation, the JHSC will designate one or more members to conduct one on the committee's behalf.
- 3.9 Instruction and Training Information – required training and instructions required for workers at their workplace will be reviewed by the JHSC at least annually to provide insight for the review and update of the OHSMS
- 3.10 Hygiene testing – The JHSC will be advised of, consulted, and provided with the report for any occupational hygiene testing taking place at the workplace. One or more designated members are entitled to be present at the time of testing and ask any questions pertinent to the health and safety of the workplace.




3.11 Recommendations – Recommendations are typically made during the scheduled meetings. The committee will send all formal recommendations through HCSS forms. Management will respond to the recommendation within 21 days of receiving the recommendation. The response will include a timetable to address any recommendation items agreed with and reasons for disagreement with recommendations that are not agreed to.

4.0 Payment for Committee Members – All time spent by committee members in relation to their duties and responsibilities to the committee will be considered work hours for which members will receive their appropriate rate of pay.

#### 5.0 General

- (a) It is agreed that employees should report health and safety concerns to their immediate supervisor before bringing them to the committee. This is legislated under Section 28 of the Act
- (b) It is understood that all personal and medical information is to be kept confidential
- (c) These terms may be amended at any time by consensus or if quorum is available, vote by simple majority.
- (d) These terms shall be agreed upon and reviewed at the first meeting, and at least annually following.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: WHMIS 2015</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 8
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aarts</i>	# OF PAGES: 7	

## WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM 2015

### PURPOSE

WHMIS (Workplace Hazardous Materials Information System) is a material labeling and information system which addresses the workers "Right to Know" about potentially hazardous substances or chemicals at the workplace. John Aarts Group is responsible for providing hazard information on products received from suppliers concerning the use, handling, storage, and disposal of the products.

### SCOPE

JAG requires **all** employees to undergo annual WHMIS training. This training covers both basic WHMIS literacy as well as company specific training.

#### WHMIS 2015/GHS

WHMIS has changed to adopt new, international standards for classifying hazardous chemicals and providing information on labels and safety data sheets. Canada has aligned WHMIS with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). This makes hazard identification and classification more standardized.

#### Core Components of WHMIS

- hazard identification and product classification,
- labelling,
- safety data sheets, and
- worker education and training.

#### Hazardous Product Classification

Suppliers are those who sell or import products. When this product is considered a hazardous product according to the WHMIS legislation, a supplier must label the product or container, and they must provide a safety data sheet (SDS) to their customers.


WHMIS GHS applies to two major groups of hazards: physical and health:

- **Physical hazards group:** based on the physical or chemical properties of the product – such as flammability, reactivity, or corrosivity to metals.
- **Health hazards group:** based on the ability of the product to cause a health effect – such as eye irritation, respiratory sensitization (may cause allergy or asthma symptoms or breathing difficulties if inhaled), or carcinogenicity (may cause cancer).

Each hazard class contains at least one category. The hazard categories are assigned a number (e.g., 1, 2, etc.) Categories may also be called "types". Types are assigned an alphabetical letter (e.g., A, B, etc.). In a few cases, sub-categories are also specified. Subcategories are identified with a number and a letter (e.g., 1A and 1B). The category tells you about how hazardous the product is (that is, the severity of hazard).

- Category 1 is always the greatest level of hazard (that is, it is the most hazardous within that class). If Category 1 is further divided, Category 1A within the same hazard class is a greater hazard than category 1B.
- Category 2 within the same hazard class is more hazardous than category 3, and so on.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: WHMIS 2015</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 8
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Astor</i>	# OF PAGES: 7	

## WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM 2015

### Labels

The purpose of the labels is to clearly identify the contents of the hazardous material.

Labels are important because they are the first alert there may be hazards associated with using the product covered by WHMIS legislation. The labels also tell what precautions to take when using the product. Suppliers are responsible for labelling WHMIS products that they provide to customers.

The employer/employees shall not remove or deface labels on incoming containers of hazardous chemicals. Supplier labels must be written in English and French. They may be bilingual (as one label), or available as two labels (one each in English and French).

The supplier label must include the following information:

1. **Product identifier** – the brand name, chemical name, common name, generic name or trade name of the hazardous product.
2. **Initial supplier identifier** – the name, address and telephone number of either the Canadian manufacturer or the Canadian importer.
3. **Pictogram(s)** – hazard symbol within a red "square set on one of its points".
4. **Signal word** – a word used to alert the reader to a potential hazard and to indicate the severity of the hazard.
5. **Hazard statement(s)** – standardized phrases which describe the nature of the hazard posed by a hazardous product.
6. **Precautionary statement(s)** – standardized phrases that describe measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous product or resulting from improper handling or storage of a hazardous product.
7. **Supplemental label information** – some supplemental label information is required based on the classification of the product. Labels may also include information about precautionary actions, hazards not yet included in the GHS, physical state, or route of exposure. This information must not contradict or detract from the standardized information.

A **signal word** is a prompt that alerts you about the degree or level of hazard of the product. There are only two signal words used:

**"Danger"** - is used for high-risk hazards



**"Warning"** - is used for less severe hazards.

Each hazard class and category has an assigned **"hazard statement"**. Hazard statements are brief, standardized sentences that tell you more about the exact hazard of the product. The statements are short, but they describe the most significant hazards of the product.

**Precautionary statements** provide advice on how to minimize or prevent adverse effects resulting from exposure to a hazardous product or resulting from improper storage or handling of a hazardous product. These statements can include instructions about storage, handling, first aid, personal protective equipment and emergency measures.

Labels require the following:



- the pictogram, signal word, and hazard statement are to be grouped together;
- to be clearly and prominently displayed on the container;

 <b>JOHN HARRIS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: WHMIS 2015</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 8
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 		# OF PAGES: 7

## WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM 2015



- to be easy to read (e.g., you can see it easily without using any item except corrective glasses), and
- to be in contrast with other information on the product or container.

Example of a bilingual label:

<h3>Product K1 / Produit K1</h3>	
 	
<p><b>Danger</b>          Fatal if swallowed.          Causes skin irritation.</p> <p><b>Precautions:</b>          Wear protective gloves.          Wash hands thoroughly after handling.          Do not eat, drink or smoke when using this product.</p> <p>Store locked up.          Dispose of contents/containers in accordance with local regulations.</p> <p>IF ON SKIN: Wash with plenty of water.          If skin irritation occurs: Get medical advice or attention.          Take off contaminated clothing and wash it before reuse.          IF SWALLOWED: Immediately call a POISON CENTRE or doctor.          Rinse mouth.</p>	<p><b>Danger</b>          Mortel en cas d'ingestion.          Provoque une irritation cutanée.</p> <p><b>Conseils :</b>          Porter des gants de protection.          Se laver les mains soigneusement après manipulation.          Ne pas manger, boire ou fumer en manipulant ce produit.</p> <p>Garder sous clef.          Éliminer le contenu/récipient conformément aux règlements locaux en vigueur.</p> <p>EN CAS DE CONTACT AVEC LA PEAU : Laver abondamment à l'eau.          En cas d'irritation cutanée : Demander un avis médical/consulter un médecin.          Enlever les vêtements contaminés et les laver avant réutilisation.          EN CAS D'INGESTION : Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.          Rincer la bouche.</p>
Compagnie XYZ, 123 rue Machin St, Mytown, ON, N0N 0N0 (123) 456-7890	

### A workplace label:











- must appear on all hazardous products produced in a workplace or transferred to other containers by the employer
- must appear in placard form on hazardous products received in bulk from a supplier
- must have the following information:
  - product identifier (product name)
  - information for the safe handling of the product
  - statement that the SDS is available
- may contain the WHMIS pictograms.

 <b>JOHN HARRIS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: WHMIS 2015</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 8
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 		# OF PAGES: 7

## WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM 2015

### WHMIS GHS PICTOGRAMS

Pictograms are graphic images that immediately show the user of a hazardous product what type of hazard is present:

	<b>Exploding bomb</b> (for explosion or reactivity hazards)		<b>Flame</b> (for fire hazards)		<b>Flame over circle</b> (for oxidizing hazards)
	<b>Gas cylinder</b> (for gases under pressure)		<b>Corrosion</b> (for corrosive damage to metals, as well as skin, eyes)		<b>Skull and Crossbones</b> (can cause death or toxicity with short exposure to small amounts)
	<b>Health hazard</b> (may cause or suspected of causing serious health effects)		<b>Exclamation mark</b> (may cause less serious health effects or damage the ozone layer*)		<b>Environment*</b> (may cause damage to the aquatic environment)
	<b>Biohazardous Infectious Materials</b> (for organisms or toxins that can cause diseases in people or animals)				

\* The GHS system also defines an Environmental hazards group. This group (and its classes) was not adopted in WHMIS 2015. However, you may see the environmental classes listed on labels and Safety Data Sheets (SDSs). Including information about environmental hazards is allowed by WHMIS 2015.

### Safety Data Sheets


WHMIS GHS refers to Safety Data Sheets (SDS's). Employers will be required to make sure that all hazardous products have an up-to-date SDS when it enters the workplace. The SDS's must be readily available to the workers who are exposed to the hazardous product, and to the health and safety committee or representative.

You can think of the SDS as having four main purposes. It provides information on:

- Identification:** for the product and supplier.
- Hazards:** physical (fire and reactivity) and health.
- Prevention:** steps you can take to work safely, reduce or prevent exposure, or in an emergency.
- Response:** appropriate responses in various situations (e.g., first-aid, fire, accidental release).

SDS's provide more detailed hazard information about the product than the label. They are an important resource to help you learn more about the product(s) used.

SDS's must follow a standard 16-section format. SDSs will be updated when significant new data becomes available.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: WHMIS 2015</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 8
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Arto</i>	# OF PAGES: 7	

## WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM 2015

### Education and Training

**Employers** are required to establish education and training programs for workers exposed to hazardous products in the workplace. Employers must also make sure that the products are labelled and that an SDS is present for each product and that they are readily available to workers.

**Workers** are required to participate in the training programs and to use this information to help them work safely with hazardous materials.

**Education:** refers to the instruction of workers in general information such as how WHMIS works and the hazards of products.

**Training:** refers to the instruction in site-specific information such as work and emergency procedures. Both education and training are an important part of understanding workplace hazards.

### Supervisors must ensure the following is available at their worksite:

- All materials have supplier and/or workplace labels.
- **Safety Data Sheets (SDS's)** are readily available in the workplace.

### Flammable Fuel Use and Storage


- All workers using propane must be certified. Propane must be secured and stored outside. Gloves must be worn when changing a propane tank.
- Fuels must be stored and carried in approved containers. Pails or loader buckets are not approved storage containers.
- No smoking is permitted within the vicinity of flammable liquids or gases.
- All tanks, cylinders and containers must be fully closed after use.
- Never leave a running fuel nozzle unattended.

A facility that stores fuel to be dispensed into any moving motorized vehicle or craft is legally required to follow the regulations and codes listed below:

- Technical Standards and Safety Act, 2000
- Ontario Regulation 216/01, Certification of Petroleum Equipment Mechanics
- Ontario Regulation 217/01, Liquid Fuels
- Liquid Fuels Handling Code Adoption Document
- Liquid Fuels Handling Code 2017

### GENERAL INSTRUCTIONS AND EMERGENCY PROCEDURES- Fueling

- In the event of an incident or accident involving personal injury always ensure you are safe and administer first aid if you are trained and certified to do so. Call 911 for any fire or explosion.
- In the event of a suspected leak or product release into the environment greater than 25 litres, notify the supervisor. Supervisors must notify management.
- Management will determine when the spill action centre (1-800-268-6060) is to be notified.
- Know the location of the fire extinguishing equipment and know how to use it.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: WHMIS 2015</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 8	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aarts</i>	# OF PAGES: 7	

## WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM 2015

- Know the location of and how to use the spill kits.
- You should be able to see what is happening at every fueling position.
- Only persons trained in the Emergency Procedures and safe operation of the equipment are authorized to use the equipment.
- The authority having jurisdiction in Ontario for Liquid Fuels is the Technical Standards and Safety Authority (TSSA) at 1-877-682-8772

### RESPONSIBILITIES

#### Senior Management:

- Review this procedure at least annually
- Ensure JAG operates in compliance with all applicable legislation and requirements

#### Managers:

- Ensure all products in JAG places of business are compliant with WHMIS regulations
- Ensure that SDS binders are complete and available to all employees
- Ensure all workers are up to date on their WHMIS training. WHMIS should be refreshed annually

#### Supervisors:

- Ensure SDS binders are up to date and complete. If any documents are missing contact JAG health and safety for a copy
- Ensure all products are stored, handled, used, etc. according to the corresponding SDS
- Advise all relevant workplace parties to the location of all SDS's

#### Workers:

- Attend WHMIS refresher training as required
- Consult SDS or your supervisor if there is any doubt about how to handle a product
- Report any missing or damaged labels to your supervisor
- Report any deficiencies in JAG's WHMIS procedures to your supervisor

#### Health and Safety Team:

- Review the WHMIS policy at least annually
- Ensure all SDS's are available
- Administer WHMIS training for all employees who require it

#### Health and Safety Committee/Rep:

- Review Policies and procedures as required

#### Subcontractors


- Review Policies and procedures as required

#### Visitors

- Review Policies and procedures as required

### DOCUMENTATION

- SDS's
- Location Specific Emergency plans
- Occupational Health and Safety Act
- O.Reg 860/90
- O.Reg 213/91

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: WHMIS 2015</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 8
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aarts</i>	# OF PAGES: 7	

## WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM 2015

- O.Reg 851/90
- O.Reg 854/90

### TRAINING

- First aid
- WHMIS
- Location specific orientation

### ENFORCEMENT


Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by John Aarts Group.

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### DOCUMENT AND RECORD CONTROL

All documents and records generated from this procedure will be stored on HCSS/JAG servers indefinitely.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: First Aid</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aarts</i>	# OF PAGES: 3	

## FIRST AID REQUIREMENTS AND PROCEDURE

### PURPOSE

The John Aarts Group has adopted this policy to ensure the ongoing health and safety of our staff, customers, and visitors. JAG will ensure that appropriate first aid supplies are maintained and accessible at all times, and that a trained and competent individual is on-site at all times.

### SCOPE

The John Aarts Group is committed to meeting all legislative regulations regarding First aid facilities, training, records, and reporting under the Occupational Health and Safety Act (OHSA), and Regulation 1101 - First Aid Requirements, Workplace Safety and Insurance Act.

#### **The John Aarts Group shall meet all legislative requirements regarding First Aid, including:**

- JAG shall ensure that at least one person with appropriate first aid training is scheduled and present on every shift.
- The designated first aider will be available to render assistance at all times during that shift.
- A copy of the WSIB First Aid Poster (Form 82) will be posted in a high-visibility location.
- Injuries that occur in the workplace will be recorded and reported.
- JAG will investigate any and all accidents that result in injury.

#### **The John Aarts Group will ensure that:**

- Roles and responsibilities regarding First Aid are defined. Workers, supervisors and safety staff will be trained and educated in their respective roles.
- The first aid kit shall be located within quick and easy access for all employees.
- Each first aid kit shall be adequately stocked with supplies.
- First aid treatment records shall be kept.
- First aid certificates of all trained First-Aiders shall be posted.
- First aid kit inspections will be conducted on a regular schedule, and records of these inspections will be maintained.

John Aarts Group managers shall ensure that appropriate numbers of staff that have First Aid and CPR training are onsite and scheduled.

Training of all designated first aiders shall be the responsibility of JAG management.


Each John Aarts Group department shall ensure that first-aid kits:

- Are available in each building or area of a building, and in the appropriate number;
- First-aid kits are easily accessible and highly visible;
- Are available at each remote location where work is being performed;

John Aarts Group's Emergency procedures and Emergency phone numbers shall be posted.

First-aid kits shall be inspected quarterly (if necessary) and maintained by the designated first aiders who work in the vicinity of the area.

First-aid kits shall be restocked as needed with items as prescribed by the Regulation 1101 at the expense of the John Aarts Group.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: First Aid</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Arto</i>	# OF PAGES: 3	

## FIRST AID REQUIREMENTS AND PROCEDURE

JAG shall maintain an electronic database indicating the effective date of training and expiration date for all first aiders.

Regular First Aid courses will be scheduled for all first aiders who are scheduled for renewal or need a course.

### First Aid Kit Requirements

JAG will stock all first aid kits as per the requirements laid out in Reg. 1101

### First Aid Treatment

First aid is the one-time treatment or care and any follow-up visit(s) for observation purposes only.

As described by the WSIB, first aid includes, but is not limited to:

- Cleaning minor cuts, scrapes, or scratches;
- Treating a minor burn;
- Applying bandages and/or dressings;
- Applying a cold compress, cold pack, or ice bag;
- Applying a splint;
- Changing a bandage or a dressing after a follow-up observation visit.

## PROCEDURE

### Injury Occurs:

- In the event of an injury on at JAG place of business, first aid should be promptly delivered followed by treatment of a medical professional if necessary

### First Aider/Supervisor Notified:

- The first person on scene – or if they are capable, the injured party – should notify JAG supervision, a qualified first aider; whoever they come upon first

### Emergency Response Initiated (when required):

- If required, relevant emergency response/rescue plans will be initiated

### First Aid Administered:

- Qualified first aider will administer first aid within their training and capability
- First aid inventory should be updated

### Incident Report Produced:

- An incident report should be created and sent to health and safety at the earliest appropriate time after the incident

### Investigation Launched (when required):

- If required a full investigation will be carried to determine the causes that lead to the injury

## RESPONSIBILITIES


### Senior Management:

- Review this procedure at least annually
- Ensure JAG operates in compliance with all applicable legislation and requirements

### Managers:

- Coordinate with supervisors to ensure there are adequate first aid supplies
- Coordinate with supervisors to ensure there are an adequate number of trained first aiders on site



 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: First Aid</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 13
	APPROVAL DATE: February 10, 2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: <i>Ryan Aarts</i>		REVISION # 1
		# OF PAGES: 3	

## FIRST AID REQUIREMENTS AND PROCEDURE

- Ensure location specific emergency procedures are in place
- Assist in investigations if required

### Supervisors:

- Maintain adequate first aid stations
- Ensure all required documentation under this policy is completed as needed
- Ensure that all subcontractors and visitors are aware of this policy at the time of their site-specific orientation

### Workers:

- Report all incidents to JAG supervision
- Be aware of the location specific emergency plans
- Work in compliance with all relevant legislation

### Health and Safety Team:

- Ensure all first aid requirements are met when performing inspections
- Schedule first aid training for employees as required
- Conduct incident investigations when required

### Health and Safety Committee/Rep:

- Review policies and procedures as required

### Subcontractors:

- Review policies and procedures as required

### Visitors:

- Review policies and procedures as required

## REQUIREMENTS

### Documentation:

- Reg. 1101
- Location Specific Emergency plans
- Occupational Health and Safety Act
- O.Reg 213/91
- O.Reg 851/90
- O.Reg 854/90

### Training:

- First aid
- Location specific orientation

## ENFORCEMENT



Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by John Aarts Group.

## REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

## DOCUMENT AND RECORD CONTROL

All documents and records generated from this procedure will be stored indefinitely on J-AAR's or HCSS' Servers

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Responsibilities</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 1-14	
	APPROVAL DATE: 02/10/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## WORKPLACE RESPONSIBILITIES

### PURPOSE



This section outlines specific responsibilities in implementing health and safety functions. These lists are not intended to be all-inclusive, but to help all parties better understand their responsibilities.

All parties to a project, and all individuals in the company, at all levels and functions, are responsible for understanding and carrying out the responsibilities, procedures and policies in the legislation and in this Health, Safety and Environmental Program.

### RESPONSIBILITIES

#### EMPLOYERS / SENIOR MANAGEMENT

- Appoint a **“competent person”** as a supervisor at a workplace. A competent person is legally defined in the OHSA as someone who:
  - Is qualified because of knowledge, training and experience to organize the work and its performance;
  - Is familiar with the OHSA and regulations that apply to the work; and
  - Has knowledge of any potential or actual danger to health and safety in the workplace.
- Ensure that protective devices, tools and equipment are provided and maintained in good condition.
- Review the Health and Safety Policies at least once a year. As required, post in the workplace a copy of the current policies and provide access to the Health, Safety and Environmental Program. Review all other policies in the HSE Program as needed.
- Review the Health, Safety and Environmental Program on an “as needed” basis with all supervisors, identifying responsibilities and emphasizing co-operation among all parties, specifically the Internal Responsibility System.
- Post in the workplace a copy of the OHSA and any Regulations that apply. Post any required explanatory material from regulatory agencies (i.e. MLTSD, WSIB) outlining worker rights, responsibilities, and duties.
- Provide information, instruction and supervision to a worker to protect the health and safety of the worker.
- Advise the Owner of a project or worksite of any unique hazards that may occur because of the work being done.
- Not knowingly permit a person who is under a prescribed age to be in or about the workplace. Only employ a person of an allowable age.
- Provide the necessary resources to implement, support, and enforce the HSE Policy and Program of the John Aarts Group.
- Promote the exchange of health and safety information with outside groups.
- Review all health and safety training and ensure that adequate measures are available for the prevention of injuries and incidents.
- Provide compensation and time to employees who are selected as Health and Safety Representatives or as Joint Health and Safety Committee Members.
- Investigate and report all incidents and cases of occupational illness or disease to appropriate authorities.
- Additional responsibilities as outlined in the Occupational Health and Safety Act (Sections 23 to 26).

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Responsibilities</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 1-14	
	APPROVAL DATE: 02/10/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	


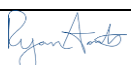
## WORKPLACE RESPONSIBILITIES

### SUPERVISORS

- Be familiar with the applicable requirements of the OHSA and Regulations to ensure compliance.
- Ensure that workers work in a proper manner with the protective devices, equipment and clothing as established by JAG and as required by the Occupational Health and Safety Act and Regulations.
- Ensure workers receive proper instruction and training prior to the commencement of work.
- Document, record and report all incidents, near-misses, injuries, medical aid cases, first aid occurrences, hazardous conditions, traffic incidents, utility strikes, property damage or any other health and safety issues immediately to management. Using the HCSS Field app (digital) is the preferred method.
- Take every precaution reasonable in the circumstances for the protection of workers.
- Provide orientation for new workers as required. Complete and submit all necessary forms.
- Complete all inspections, safety talks, JHA's, meetings as required for your worksite and tasks. Using the HCSS Field app (digital) is the preferred method.
  - Supervisors at projects (construction) must inspect the workplace weekly as per the legislation.
- Supervisors must ensure the H&S Representative inspects the workplace monthly, as per the legislation.
- Inspect tools and equipment regularly to ensure that they are properly maintained.
- Review safety aspects of dangerous tasks with workers.
- Ensure housekeeping is done at least daily.
- Review Safety Data Sheet's with workers before using hazardous materials.
- Review Ministry of Labour orders and safety directives with workers. Post all orders onsite.
- Discuss safety experiences with other supervisors and inspectors (networking) and provide suggestions to management for safety talk subjects and policy revisions.
- Ensure all necessary documents, paperwork, certificates, inspections, checklists are submitted as required for filing and/or review.
- Additional responsibilities as outlined in the Occupational Health and Safety Act (Section 27).

### WORKERS

- Work safely and in compliance with the Occupational Health and Safety Act, all applicable Regulations, the JAG Health, Safety, and Environmental Program; and any location-specific regulations and requirements which may apply.
- Take every possible precaution to protect themselves, fellow workers and the general public from health and safety hazards.
- Advise your supervisor of any workplace hazards.
- Wear all personal protective equipment and clothing in a proper manner as per the procedures established by JAG and as required by the Occupational Health and Safety Act and Regulations.
- Inspect personal protective equipment before use and report defects or damage to the supervisor.
- Only operate or use tools and equipment if competent and authorized to do so. Handle tools, machinery, vehicles, and equipment according to operating instructions and/or established legislation, rules and procedures.
- Follow all rules, policies and procedures as prescribed by legislation or company programs.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Responsibilities</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 1-14	
	APPROVAL DATE: 02/10/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## WORKPLACE RESPONSIBILITIES

- Adhere to required inspections, complete required equipment maintenance, and report any hazards or deficiencies. Any misuse, neglect or recklessness will result in an investigation with required disciplinary actions.
- Report to work in a fit and alert condition. Arrive dressed appropriately for the task(s) or duties given. Continue to practice good personal hygiene while at work.
- Use precautions if wearing finger rings, earrings, neck chains or other loose jewelry/clothing that could be entangled near moving parts of equipment. Tie back long hair.
- If witnessing unsafe practices of a person, it is the responsibility of the employee to recommend the termination of the unsafe activity to the person. If the suggestion is ignored, then the situation must be reported immediately to a supervisor. We look out for each other.
- Do not disregard safety rules and/or common-sense practices that could jeopardize your health and safety or that of someone else.
- Report all incidents, near-misses, injuries, first aid occurrences, utility strikes, property damage, traffic incidents or other health and safety issues to the supervisor immediately.
- Always call your supervisor before driving to the worksite if adverse weather is present or predicted. This includes snow / ice storms, blizzards, rain, fog, etc.
- Discuss previous health and safety experiences with your supervisor or with management and provide suggestions to improve the company HSE program. Network with workers from other companies and discuss safety issues and concerns.
- Keep the work area clean. Pick up garbage and debris on an ongoing basis and at least daily.
- Please use common sense and follow SAFE instructions from your supervisor. All workers have the right to refuse unsafe work but must also follow safe directions from their supervisors or management.
- Attend and complete mandatory training programs or courses provided and/or arranged by JAG.
- Additional responsibilities as outlined in the OHSA (Sections 28).

## HEALTH AND SAFETY TEAM

- Act as a resource person, in regards to health and safety issues, questions and concerns for both employer and employees.
- Conduct regular reviews of workplaces. Assist with inspections as needed.
- Investigate incidents as required.
- Create and review safety policies, procedures and programs.
- Regularly attend the Joint Health and Safety Committee meetings.
- Liaise with the Ministry of Labour. Review inspections and orders.
- Manage supplies of personal protective equipment and safety equipment.
- Assist in all aspects of safety training for both new and current employees.
- Assist and coordinate with management new worker orientations.
- Manage supplies of personal protective equipment and safety equipment.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Responsibilities</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 1-14	
	APPROVAL DATE: 02/10/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## WORKPLACE RESPONSIBILITIES

### SUBCONTRACTORS

- Appoint a “competent person” as a supervisor at a worksite, if required.
- Prepare a Health and Safety Policy and develop and maintain a Program to implement it. Provide when requested.
- Ensure that workers are properly trained, licensed and qualified as required by legislation, to adequately perform their duties
- Conduct weekly health and safety meetings or attend JAG’s meetings and/or orientations.
- If requested, provide a copy of current SDS’s for any products or chemicals used at the workplace.
- Conduct clean-up of work areas daily.
- Receive and review the JAG “Health, Safety and Environmental Program”. Ensure that all workers work in accordance with the Program.
- Notify the JAG supervisor immediately of any injuries, near-miss, incidents, medical aid cases, property damage, spills or utility strikes occurring at a worksite.
- Provide compensation and time to workers who are selected as Health and Safety Representatives or as Joint Health and Safety Committee Members.
- Provide a W.S.I.B. Clearance Certificate when requested. Other W.S.I.B. information (i.e. WISR) on injury data may also be requested.
- Provide proof of required insurance with appropriate parties named as additional insured.
- Provide an MLTSD *Form 1000* (Employer Registration) as requested. This form must be posted at the worksite or kept readily available at the worksite.
- Fully comply with W.S.I.B. Reg.1101 –First Aid Requirements. All subcontractors must have the appropriate number of workers trained in first aid as required by this regulation.
- Complete and return subcontractor acknowledgment and declaration forms as required. All documentation will be reviewed to ensure it is valid and complete. Work may be delayed until documentation is received.
- JAG management will review subcontractors at project completion to determine if any new requirements for future work are needed.
- Additional responsibilities as outlined in the Occupational Health and Safety Act.

### DOCUMENTS


- Occupational Health and Safety Act, Sections 23-32
- John Aarts Group Health and Safety Program

### DOCUMENT CONTROL

All documents and records generated for this procedure will be stored indefinitely on the HCSS or John Aarts Group servers. They can be accessed by management at anytime.

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by John Aarts Group.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Responsibilities</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 1-14
	APPROVAL DATE: 02/10/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aarts</i>	# OF PAGES: 4	

## WORKPLACE RESPONSIBILITIES

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.



## COMPANY RULES POLICY STATEMENT

Senior management are unwavering in our commitment to reduce or eliminate the risk of work-related injury, illness, and property damage on our projects, worksites, facilities, offices, and operations. As such, we have developed a set of company rules and policies that will help John Aarts Group employees, visitors, and subcontractors meet or exceed the standards set in *The Occupational Health and Safety Act* and applicable Regulations.


JAG will ensure that employees have access to written copies of both our standard and workplace-specific rules as part of their orientation process.

Senior management has created these rules and policies through years of experience and in consultation with supervisors, and workers as a way of helping to ensure best practices are followed in all our areas of business. It is expected that everyone in the company follow these rules at all times. If any employee violates these rules at any time, they will be subject to JAG's progressive discipline policy and procedure.

Signature

February 10, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Rules</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## COMPANY RULES PROCEDURE

### PURPOSE

The purpose of this procedure is to ensure that all employees work safely in our areas of operations by laying out companywide expectations regarding their conduct and behaviour while at work. This procedure – in conjunction with progressive discipline – will be used as a management tool in the prevention of workplace accident and/or hazards through the reduction and elimination of unsafe acts.

### SCOPE

This procedure applies to all workplace parties working at all John Aarts Group places of business as well as all employees representing the company. All employees are responsible for health and safety throughout the company. They must always follow the company rules.

### PROCEDURE

#### Company Rules

JAG's company wide and site-specific rules apply to all employees regardless of position. Management will ensure that all employees have access to both standard and site-specific rules at the time of their onboarding and site-specific orientations. Following the company orientation, they are administered a knowledge verification quiz. Employees will always have access to company rules through HCSS or by going to <https://johnaartsgroup.com/h-s/> and accessing the HASP.


#### Progressive Discipline

All employees are required to comply with the Occupational Health and Safety Act, applicable Regulations, and the JAG Health and Safety Management Program at all times, at all places of business. Additionally, the Client or Constructor may have health and safety procedures which must be followed.

JAG will not condone the breach of any statutory requirement or the OHSMS. The following disciplinary actions will be taken to help enforce John Aarts Group policies:

1. Verbal warning: Given where – in the opinion of the supervisor—the violation is minor and easily remedied. These are typically low risk. Disciplinary action will result in a safety briefing by the supervisor regarding the violation.
2. Written warnings: A written Notice of Infraction will be issued where – In the opinion of the Supervisor – the violation is of a major nature which could directly endanger the health and well-being of any workplace party. These notices can also be given out for repeated violations of a minor nature. There are three written notices given before potential termination:
  - 1) Disciplinary action for the first written notice will include a mandatory safety talk regarding the violation. Suspension at this point is possible, depending on circumstances
  - 2) Disciplinary action for a second written notice includes a requirement for the worker to attend a health and safety meeting. Suspension is possible depending on the circumstances
  - 3) Disciplinary action for a FINAL written notice will result in suspension of the worker. If there are extenuating circumstances, the company may waive the requirement to suspend. However, at a minimum, the worker must attend a meeting with management to discuss and establish disciplinary action and further training requirements.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Rules</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## COMPANY RULES PROCEDURE

### RESPONSIBILITIES

#### Senior Management

- Develop and review the company rules – both standard and site-specific – as required, at least annually
- Ensure company rules are followed and applied consistently throughout the company and all places of business through management and supervisors
- Develop and review the progressive discipline program as required – at least annually
- Follow up on supervisory discipline as required
- Comply with all duties and responsibilities under the Act and all applicable Regulations

#### Supervisors

- Take prompt action when a worker has violated JAG company rules or is working in contravention to the Act
- Document all infractions following JAG's progressive discipline policy
- Report all infractions to management
- Take every precaution reasonable to protect a worker
- Comply with all duties and responsibilities under the Act and all applicable Regulations

#### Workers

- Do not violate any company rules
- Advise your supervisor if you are unfit for duty, which includes any medical limitations or prescriptions.
- Advise your supervisor if you have any questions about JAG's company rules or tasks assigned to you
- Work in compliance with the Act, all applicable Regulations, and the JAG Health and Safety Policy
- Work in accordance with instruction tools and protective devices provided
- Report any health and safety violations or deficiencies to their supervisor

#### Health and Safety Team


- Assist in the development of JAG company rules and policies
- Ensure all employees have access to JAG's company rules and policies
- Assist in the development of the progressive discipline policy
- Schedule and conduct safety meetings when the progressive discipline policy requires them
- Act as a resource to site teams/senior management for continual improvement

#### Health and Safety Committee/Rep

- Review JAG company rules and policies
- Provide recommendations for improvements

### DOCUMENTATION

- The Occupational Health and Safety Act, RSO 1990
- O.Reg 213/91: Construction Projects
- O.Reg 851
- O.Reg 854
- JAG OHSMS
- Employee Infraction Notice

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Rules</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## COMPANY RULES PROCEDURE

### MULTISECTOR COMPANY RULES

#### Smoking

- As per the Smoke Free Ontario Act there is no smoking in any enclosed workplace
- An enclosed workplace means the inside of a building, structure, or vehicle, that an employee works in or frequents during the course of their employment. Typical examples at JAG include: Inside offices; Jobsite trailers, sea cans; shops, storage facilities; cabs of equipment; work vehicles
- This includes: tobacco products, e-cigarettes, cannabis products
- Some client sites may have their own smoking policies. These must be followed in conjunction with JAG's

#### Drugs and Alcohol

- JAG employees must come to work fit for duty
- JAG has zero tolerance for the possession, use, or distribution of alcohol, cannabis, and illicit drugs while employees are on duty
- Employees must strictly follow all legislation regarding the use of both medicinal and recreational cannabis while on duty. Being impaired at work by either is prohibited
- Workers must notify their supervisor if they suspect that a co-worker is unfit for duty

#### Prescription Drugs

- JAG asks that you inform your immediate supervisor if you have been prescribed drugs that may affect your job.
- This includes medical cannabis

#### Violence and Harassment

- JAG has zero tolerance for any form workplace violence and harassment
- All reported cases of workplace violence or harassment will be investigated

#### Incident Reporting

- All incidents must be reported to your supervisor
- These include: Any workplace injury, no matter how small; any near miss; any vehicle or equipment accident; any incident involving property damage
- Depending on the severity of the incident an investigation may be carried out. These are not to be punitive, but to determine the root cause in-order to avoid similar incident in the future

#### WHMIS

- All JAG employees must have annual WHMIS training
- All products brought into JAG places of business must meet the labelling and storage requirement laid out in WHMIS

#### Equipment Operation


- Do not operate equipment you are not authorized to under any circumstances

#### Daily Inspections

- JAG requires all CVOR vehicles and mobile equipment be inspected daily
- If any equipment or vehicles are found to be defective, they are to be tagged and reported to JAG supervision immediately

#### Horseplay

- No worker shall, engage in any prank, contest, feat of strength, unnecessary running or rough and boisterous conduct

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Rules</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## COMPANY RULES PROCEDURE

### Reporting Unsafe Practices and Conditions

- Workers are obligated under S.28 of the Act to report unsafe practices and conditions to their supervisor
- JAG encourages the reporting of unsafe practices and conditions. These reports are vital in our commitment to continual improvement of our OHSMS. We cannot address what we do not know

### Modifications

- Modifications to guards/tools/equipment must not be made without approval from JAG management

### Electrical Equipment

- Do not perform any work on electrical equipment unless you have a valid COQ and are authorized to do so by JAG management

## CONSTRUCTION SPECIFIC COMPANY RULES

### Meetings:

- All workers are required to attend and participate in daily site safety meetings
- All workers on site must take part in daily JHA

### Confined Spaces:

- JAG has a comprehensive policy for work being conducted in confined spaces.
- This policy must be adhered to. JAG has zero tolerance for work in confined space violations

### Working at Heights:

- JAG has zero tolerance for working at heights violations. Any worker who may be exposed to a fall hazard must review JAG SWP's and applicable regulations before carrying out the task

### Designated Substances:

- Any worker who believes they have come across a designated substance on any JAG project should stop work immediately and inform their supervisor

### Personal Protective Equipment:

- PPE must be used and selected based on the task being performed.
- Minimum PPE required: CSA approved hardhat; CSA approved boots; and high-vis clothing

### Traffic Control:

- All Traffic Control Personnel must be trained and competent
- All Traffic control devices must meet Book 7 standards
- All Temporary work zones must be laid out in accordance with Book 7

## INDUSTRIAL LOCATION COMPANY RULES

### PPE Zones:

- All PPE requirements must be met based on the zone you are in

### Traffic Control Plans:

- All established traffic control plans must be followed


### Lock-out/Tag-out:

- Consult and follow all Lock-out/Tag-out Procedures
- Use all correct lockout devices

### Access:

- Do not access any part of the plants/shop you are not authorized to
- Always check in site office

### Cranes:

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Rules</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## COMPANY RULES PROCEDURE

- Do not operate any type of crane (over head, 0-8t, etc.) without a valid certificate
- loads must never be passed over other workers
- cranes must be inspected daily before use

### Hot-Work:

- Ensure you are wearing appropriate PPE for the hot-work task
- Ensure appropriate controls (local ventilation, welding screens, fire extinguisher, etc) are in place before commencing

## MINING LOCATION RULES

### Guarding:

- Machine guarding must not be removed or tampered with
- Lockout/tagout must be used when removing a guard

### Conveyors:

- Do not tamper with or modify any guards on conveyors
- Pull cords and emergency stops must be working

### Working Faces:

- All AAROC working face procedures and applicable legislation must be adhered to
- Any concerns should immediately be brought to your supervisor
- The working face shall be sloped at the angle of repose
- The vertical height of the working face shall not be more than 1.5meters above the maximum reach of the equipment

### Stockpiles:

- All AAROC stockpile procedures and applicable legislation must be adhered to
- Stockpiles in safe zones must not be higher than 3 meters
- Overhangs, undercutting or tunneling of material both in a stockpile or pit face is not permitted

### Equipment Inspection for Surface Mining:


- Equipment performing surface mining work has additional considerations when performing equipment inspections including:
  - Two brake tests per the MOL and manufacturers specifications must be carried out and logged as part of this inspection

### Traffic Plans:

- All established traffic control plans must be followed

## DISTRIBUTION

All new hires are required to undergo a JAG orientation. At the time of this orientation workers will be given access to the JAG Health and Safety Program online and the company rules. They will meet in person with a supervisor or a member of JAG's health and safety team for review. At the end of the review new hires will take a quiz to ensure comprehension.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Rules</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## COMPANY RULES PROCEDURE

### DOCUMENT CONTROL

All documents and records generated for this procedure will be stored indefinitely on the HCSS or John Aarts Group servers. They can be accessed by management at anytime.

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by John Aarts Group.

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.



## **Personal Devices and Cell Phone Policy at Worksites**

To ensure every effort is made in our commitment to provide safe, healthy, work environments to our employees, the John Aarts Group has developed a personal devices and cell phone policy to help keep workers aware of job-site hazards. The use of personal devices at work can lead to serious injuries because they can distract the worker from hazards.

During on-duty hours, employees may carry their phones, but must receive approval from their site supervisor before using them. Cell phones are to be used for emergency or work purposes only. The law makes it illegal for drivers and operators to talk, text, type, dial, or e-mail using hand-held devices while operating a vehicle or piece of equipment.

Individuals who need to reach you at work may contact the main office or your supervisor. These numbers are available to all John Aarts Group employees. You are also free to use your devices at designated break times.

If you have extenuating circumstances, that in your opinion, warrant the use of a cell phone for personal issues or emergencies while working, the John Aarts Group asks that you first discuss them with your supervisor.

Signature

February 10, 2023

Date



## Smoking Policy

The John Aarts Group is committed to providing a smoke-free work environment to all employees. There is sufficient evidence to support the fact that secondhand smoke is a significant health hazard, and by providing all employees with a smoke free workplace, the John Aarts Group is eliminating this workplace hazard. All visitors, contractors, clients, and customers must also comply with the John Aarts Group's ban on smoking in enclosed workplaces.

The John Aarts Group also has a legal responsibility to comply with the *Smoke-Free Ontario Act*, which prohibits smoking in all enclosed workplaces and public places. An enclosed workplace means the inside of a building, structure, or vehicle, that an employee works in or frequents during the course of their employment. Typical examples include:

- Inside office buildings
- Jobsite trailers
- Sea cans
- Shops
- Storage facilities
- Cabs of equipment
- Work and company vehicles

No person shall smoke or vape in any enclosed workplace. This includes:

- **tobacco products (cigarettes, cigars etc.)**
- **e-cigarettes (i.e. vaping)**
- **cannabis products, whether medicinal or recreational**

Ashtrays or equipment serving as an ashtray are prohibited. This ban also applies after-hours when people are not working. No smoking signs will be placed appropriately at all entrances.

### **Enforcement**

Local public health units carry out inspections in workplaces in order to enforce the *Act*.

For additional information on the *Act*, call your local public health unit.

If any employee is in violation of the smoking policy, the employee may be disciplined as follows:

- 1<sup>st</sup> offence- verbal warning
- 2<sup>nd</sup> offence - written warning
- 3<sup>rd</sup> offence- possible suspension
- 4<sup>th</sup> offence- dismissal

**Any employee who violates this policy and smokes in any enclosed workplace will be responsible to pay all fines imposed by the local public health units or other enforcement agency. JAG will NOT pay any fines given to any employee.**



**Please note:** Outdoor workplaces may also have restrictions on smoking depending on specific jobsite regulations or conditions placed by the owner. This includes smoking in the vicinity of flammable or hazardous materials like gasoline, propane, natural gas lines or other materials. Always check with your supervisor.

Signature

February 10, 2023

Date





## Substance Abuse Policy

The John Aarts Group recognizes that employees who use or are impaired by drugs or alcohol while performing work endanger not only themselves, but their co-workers and others affected by the work.

While JAG also recognizes that addiction to drugs or alcohol is a serious health problem that must be addressed for employees to get help for their substance abuse issues, a violation of this policy will result in an investigation and possible enforcement up to and including termination.

**The objective of this substance abuse policy is to ensure that all employees report to work fit for duty. This policy applies to all JAG employees.**

**Client sites may also have their own Drug/Alcohol/Substance Abuse policies that must be followed in conjunction with JAG's policy. In that case, the client policy will be reviewed with all workers, employees and subcontractors.**

### Safety Sensitive Positions

All JAG positions are considered to be safety sensitive with the exception of administrative, clerical or accounting staff working entirely in the office(s).

## DEFINITIONS

### Fit for Duty

- A physical and mental state that allows an individual to perform his or her job duties safely and effectively without impairment due to the use of or after-effects of alcohol, cannabis, drugs, legal medications or other health conditions.

### Substance Abuse

- The use of alcohol, cannabis, drugs, legal medications and other substances that can impair a person's judgement, clarity and functioning and render him/her not fit for duty

### Drugs

- Narcotics and illegal drugs
- Cannabis
- Legal prescription, over-the-counter medications, and drugs that cause or have the potential to cause impairment and render an employee not fit for duty.

## FIT FOR DUTY REQUIREMENTS FOR ALL EMPLOYEES

All workers must come to work fit for duty:

- Workers must not be impaired by alcohol, cannabis, drugs or other while they are on duty
- Possession use or distribution of illicit drugs on company premises, at company worksites, or in company vehicles is prohibited
- Employees must strictly follow all legislation regarding the use of both medicinal and recreational cannabis. Being impaired at work by either is prohibited
- Employees are expected to responsibly use prescribed and over-the-counter medications



- Where the use of a prescribed or over-the-counter medication, including cannabis, could inhibit an employee's ability to carry out the duties of his or her position safely or competently, the employee must advise their supervisor immediately. The supervisor will discuss the issue with management to determine whether the employee will be permitted to work or whether work restrictions will be applied.

### CANNABIS IN THE WORKPLACE

Workers must notify their supervisor if they suspect that a co-worker is unfit for duty.

According to Ontario law, consuming **recreational cannabis in the workplace is illegal**.

**Medical cannabis** is subject to different rules than recreational cannabis. Employees must notify their supervisor if they are using legally prescribed medical cannabis, so a work assessment can be completed.

**Legal cannabis use is not a justification for being unfit for duty**

### DRIVERS

You will not be allowed to have **any cannabis** (as well as other drugs that can be detected by an oral fluid screening device) **or alcohol** in your system if you are driving a motor vehicle and:

- You are 21 or under;
- Have a G1, G2, M1 or M2 licence;
- The vehicle you are driving requires an A-F driver's licence or Commercial Vehicle Operator's Registration (CVOR) or;
- You are driving a road-building machine. The following classes of vehicles are prescribed as road-building machines:
  1. pavement spreaders, pavers, profilers and finishing machines
  2. graders
  3. rollers and compactors
  4. bulldozers
  5. scrapers
  6. loaders
  7. tracked and wheeled tractors, other than truck tractors, equipped with any of the following attachments: mowers, augers or drills, compactors, spraying, equipment, snow blowers or snowplows, buckets or shovels.
  8. rock trucks
  9. pump trucks
  10. boom trucks
  11. tower cranes or concrete placing booms
  12. off-road mobile cranes
  13. off-road excavators
  14. low-speed street sweepers



## DISCIPLINARY MEASURES

JAG will investigate whether an employee has substance abuse issues or is in violation of his/her fitness for duty obligations under this policy in response to:

- Complaints or concerns by co-workers, supervisors, etc.
  - Declining performance
  - Erratic behaviour
  - Involvement in safety incidents including near misses
  - Arrests for impaired driving, drug offences and similar violations
  - Positive tests for drugs or alcohol
  - Other indications that the employee has substance abuse issues or is not fit for duty.
1. Where there are grounds to believe that an employee may not be fit for duty or capable of safely performing their job duties, they will not be permitted to work and will be required to leave the company premises or job site.
  2. When an employee, considered to be in an unfit condition, is requested to leave company premises, transportation to their residence will be arranged by the supervisor. If the employee's condition or well-being appears to be in distress or may require attention, then the supervisor shall:
    - Call 911/EMS in a medical emergency or;
    - Ensure the employee is left in the care of someone capable when brought to their residence.
  3. The company reserves the right to temporarily remove, reassign or suspend an employee pending a determination of the employee's fitness for duty, assessment of substance abuse issues or completion of an investigation into a possible violation of this policy.
  4. Employees who violate this policy are subject to disciplinary action up to and including termination of employment.

### **Post-Incident Drug and Alcohol Testing**

#### *Motor Vehicles*

When a driver is involved in a motor vehicle incident, drug and alcohol testing must be conducted, with the driver's consent, if any of the following conditions occur:

- There is a human fatality;
- There is bodily injury with immediate medical treatment required away from the scene or;
- There is disabling damage to any motor vehicle requiring a tow.

According to standards, the drug testing should be administered within 32 hours. The alcohol testing should be administered within 2 hours, but no later than 8 hours after the incident.

#### **Procedures:**

1. JAG has an account setup with a professional third-party drug and alcohol testing company/consultant.
2. Testing shall be conducted as soon as possible from the time the incident took place:
  - a. The driver will contact their Supervisor/Manager in the event of an incident;
  - b. If criteria deem necessary, the testing company will be contacted by the Supervisor/Manager or Safety Team;
  - c. If able, the driver will contact the testing company if a Supervisor/Manager is unavailable (ie. after-hours);
  - d. Testing company contact information will be available in all company vehicles and at the main office.



3. A representative from the testing company will contact and meet with the driver(s) at an approved location to collect samples for drug and alcohol testing. Testing will consist of an oral fluid test (drugs) and a breath or saliva test (alcohol).
4. If the driver(s) is unavailable because they are in police custody or medical treatment, testing will be conducted at the earliest time possible, subject to testing deadlines.
5. All testing will be in accordance with legislation and industry standards. The professional testing consultant will be used by the company throughout the testing and reporting process.
6. Tampering or attempting to tamper with a test sample is prohibited.
7. Where a driver refuses to undergo drug and alcohol testing, the company may take such refusal into consideration in determining the appropriate course of action with respect to such driver, which could include discipline, loss of use of the company vehicle, or termination.
8. Management will discuss the results of all testing with the driver(s), CEO, and legal counsel where required.
9. A driver who tests positive for drugs and/or alcohol will be advised of the positive test result, and will be suspended with pay immediately, pending an investigation by the company. Return to duty testing may be required at the discretion of management.  
In the absence of legislated thresholds, the drug levels that will be reported as a positive result will be based on industry norms as recommended by the professional consultant engaged by the company.

#### *Other Incidents*

Employees may also be required to undergo drug and alcohol testing following any incident or near-miss at a project, site or other workplace where there is reasonable cause to suspect that substance abuse may have been a contributing factor. Testing will be at management's discretion.

### **ASSISTANCE AVAILABLE**

Employees who suspect they have a substance abuse issue are encouraged to seek medical and/or professional advice and follow recommended treatment promptly before job performance is affected or violations of this policy occur.

Employees are encouraged to consult with their supervisors or management in the event they have concerns about their own substance abuse or if they suspect another co-worker has a problem with abuse. Return to duty during or after treatment will be discussed with management.

JAG recognizes that the Ontario Human Rights Code protects people with disabilities who use substances for a medical purpose or have an addiction based on the grounds of disability. Accordingly, in administering the disciplinary measures of this policy, employees will be assessed and accommodated based on their individual circumstances and capabilities to the point of undue hardship.


### **TRAINING**

The Health and Safety team is responsible to train new employees on this policy annually at the safety meetings or at new hire orientations. Supervisors can also train during new hire orientations.

Signature

February 10, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5, 8, 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

### Company Vehicles and Drivers

Please remember that all drivers must comply with all road and traffic legislation and any company procedures when operating a company vehicle. See **Company Vehicle Policy** at the end of this section.

Some of the most common infractions include:

- Drivers not wearing seat belts
- Drivers speeding
- Drivers using hand held cell phones
- Loads not secure
- Daily vehicle inspections not completed when required

#### **Please follow all regulations:**

- Make sure you have a valid driver's licence that is appropriate for the class of vehicle you will drive. Do not drive with an expired or suspended licence.
- Ensure all required paperwork is in the vehicle: ownership, insurance and for **commercial vehicles this includes the CVOR certificate and daily inspection.**  
All drivers of **commercial vehicles must** complete daily written inspections as per MTO regulations. Submit them to the office every week.

#### **What is a Commercial Vehicle?**

A commercial motor vehicle is defined as a vehicle with a registered gross weight or actual gross weight in excess of 4,500 kilograms. This also includes trailers.

A yellow sticker will be placed on the left-side of the vehicle (on the window on trucks) to indicate it is registered as commercial. The RGW will also be listed on the ownership.

If a truck tows a trailer and the trailer has a yellow sticker, they are both considered commercial.

#### **Driver Training**

All new drivers operating CVOR vehicles will receive an orientation consisting of an in-cab and on-road evaluation. JAG will use an experienced company driver who has completed a train-the-trainer program to complete the evaluation. The evaluation will include:


- Pre-trip inspections
- Skills, abilities
- Safe driving practices
- Load security

When complete, the trainer will submit the evaluation to management for review.

#### **Driver Abstracts**

JAG will order from the MTO driver abstracts for all employees. They will be reviewed to determine eligibility to drive company vehicles based on licence status and/or any driving violations. The abstracts will be reviewed according to the following schedule:

- Initially when an employee is hired and then;
  - Every 100 days for employees operating CVOR rated vehicles;

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

- Twice per year for all other employees.

In the event the abstract is not clear of violations, the company has the right to prohibit driving and remove the use of the company vehicle.

Despite the review of abstracts, the onus is on the employee to immediately inform the company if their licence is invalid, expired or suspended for any reason. Drivers that do not comply with legislation will be responsible for any fines/tickets issued to them. All violations committed by a driver while operating a commercial vehicle impacts the company CVOR. The CVOR is monitored regularly by the company to check violations.

### GPS Monitoring in Vehicles

The company may access GPS locations, monitor a vehicle's fuel/mileage, idle time, driving practices (such as speeding), and sensors for maintenance. The GPS devices are monitored for removal, tampering and/or breakage (accidental or intentional). Any employee intentionally tampering with a GPS device will be subject to discipline.

### Commercial Vehicle Daily inspections

All drivers of commercial vehicles must complete a daily inspection report. The inspection and report are valid for 24 hours. If a trailer is attached, it must be included.

- Drivers will complete the report prior to driving the vehicle.
- If access to a daily inspection book is unavailable, get one before you start driving.
- Drivers will notify the shop immediately if a defect is found and await further instruction.
- The vehicle may be driven with minor defects, but they must be reported. If defects affect the safe operation of the vehicle, they must be repaired before operation of the vehicle on a public road.
- Drivers must submit paper copies of all inspection reports weekly to the office.
- Ensure all loads are secure with chains, straps as needed. Check with office if any load permits are required.

### On the daily inspections:

Fill in ALL information on the form including:

- First and last name
- Odometer reading
- Plates including trailers
- Write the specific location. Example - do not write "Office", instead write "3003 Page St.- London"
- Date and time
- Company name

### Commercial Vehicle Logbooks


Any travel beyond a **160 km radius** from a driver's start point that day requires a driver log entry. A driver log is also required if your start location is different than your end location. Examples would include those working out of town. Logs are now required to be digital only.

### Allowable Driving time

Ontario's hours-of-service regulation governs the maximum driving times and minimum off-duty times of commercial vehicle drivers.

### A driver:

- must have 10 hours off-duty in a day

 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

- cannot drive more than 13 hours in a day
- cannot drive after 14 hours on-duty in a day

### **After a period of at least 8 hours off-duty, a driver cannot:**

- drive more than 13 hours
- drive after having been on-duty for 14 hours
- drive after 16 hours has elapsed

All timesheets will be reviewed. This includes digital apps. Management will review hours of service to ensure drivers are complying with legislation.

Vehicles may also be equipped with GPS devices to track and monitor location, speed, hours, and vehicle performance.

Files will be created and maintained. Files will contain a copy of:

- current driver abstract
- training documents
- incident reports / enforcement

### **Driver Fatigue**

Driver fatigue is a major safety concern. Regulatory provisions alone are not enough to control the harmful effects of driver fatigue on the safety of all road users.

Fatigue is a state of mental and/or physical exhaustion which reduces a person's ability to perform work safely and effectively. Fatigue is the result of not getting enough sleep. Managing fatigue is one component of the approach to employee well-being.

### **Aggravating factors**

Various external factors related to traffic conditions, roadway conditions, the weather, monotony, or the complexity of the tasks to be performed affect a person's resistance to fatigue. Not to mention personal factors, such as a person's state of health, age, or the time of day a person feels more alert.

### **Time of day**

Certain times of day are more favorable to sleep, and others to wakefulness. The risk of falling asleep at the wheel is greater in the early afternoon and at night.

### **How long you have been awake**


After 17 waking hours, physical and mental performance declines considerably and is worse than if the person had a blood alcohol concentration of 50 mg per 100 ml of blood.

### **Sleep debt**

Regardless of age, if a person does not get enough sleep, he or she accumulates a sleep debt. A sleep debt of five hours has the same effect as a blood alcohol concentration of 50 mg per 100 ml of blood.

### **Sleep disorders**

Sleep disorders, such as sleep apnea, which affects many drivers, amplify the effects of fatigue.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

### Alcohol, medications, and other drugs

The effects of fatigue are greatly amplified by consuming alcohol, certain medications, or other drugs

#### Employees must follow these requirements:

- be fit for duty - free from alcohol and drugs;
- not chronically use over the counter or prescription drugs to increase mental alertness.
- report tiredness/fatigue to supervision and supervisors shall take appropriate action to assist the worker.
- be rested prior to starting work.
- monitor their own performance and take regular periods of rest to avoid continuing work when tired.

#### Management Strategies to Minimize Fatigue

- training workers and supervisors to recognize the causes is likely the best and most reasonable control – making them understand that they need to sleep.
  - critical work, high risk work should be completed when a worker is expected to be most alert from 9:00 am to 1:00 pm
  - complying with hours-of-service regulations
  - the addition of extra workers to assist in managing any hazards posed by fatigue.
- JAG utilizes vehicle GPS, hours of service and site observations to track and monitor drivers. If fatigue becomes evident, management can intervene accordingly.

### Tips for driving

The best advice is to not drive if you are tired. However, some other tips include:

- keep vehicle well ventilated.
- avoid caffeine or other drugs to keep you awake (you will feel very tired when they wear off).
- listen to the radio (especially "talk" radio).
- eat lightly and avoid heavy fatty foods.
- stop often, about every two hours, to get out of the vehicle and get some fresh air.

### Shared responsibilities

**Employers** are responsible for providing employees with enough time to recuperate from accumulated fatigue and carry out their daily activities.

**Employees** are responsible for using the time so provided to recuperate and come to work well rested.

**J-AAR will train new drivers on fatigue during worker orientations.**


### MTO Zero Tolerance Regulations

You will not be allowed to have **any cannabis** (as well as other drugs that can be detected by an **oral fluid screening device**) or **alcohol** in your system if you are driving a motor vehicle and:

- You are 21 or under;
- The vehicle you are driving requires an A-F driver's licence or Commercial Vehicle Operator's Registration (CVOR) or;
- You are driving a road-building machine (i.e. graders, bulldozers, loaders, rock trucks, excavators).

Drivers, in addition to drugs or alcohol, are not permitted to operate a vehicle if their ability or alertness is impaired by fatigue.



 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

### **Transportation of Dangerous Goods**

The purpose of the Transportation of Dangerous Goods (TDG) Act and Regulations is to promote public safety when dangerous goods are being handled, offered for transport, or transported by road, rail, air, or water (marine). The TDG Regulations are a set of rules that prescribe safety standards and shipping requirements for thousands of different dangerous goods. The Regulations also provide a means of communicating the nature and level of hazard and risk associated with these dangerous goods. The key elements of TDG Regulations are:

- Training
- Preparation of documents such as shipping papers
- Using dangerous goods safety marks to communicate hazards that the product may pose to the public or the environment
- Reporting incidents

### **Training**

All JAG drivers shipping or transporting dangerous goods as defined by Transport Canada, must receive TDG training. Training will be provided by a qualified third-party and be renewed at expiry every 3 years. Workers must carry their training certificate, at all times while working.

### **Shipping**

Before shipping dangerous goods, a shipping document must be prepared. The information required in a shipping document is specified in Part 3 of the TDG Regulations.

As a minimum, the shipping document must contain:

- Consignor's name and address in Canada
- Date of shipment
- Description of the dangerous goods
- The quantity in metric measurement
- The 24-hour number of an individual who works for the consignor or the telephone number of a person who is not the consignor, such as CANUTEC,

The shipping document template prepared for JAG must be used. The document will be carried in the vehicle while transporting the dangerous goods. It must be kept in the driver's door bin or on the front seat. When the shipment is complete, the shipping document must be submitted to the main office for filing. The document will be kept for a minimum 2 years.


### **Safety Marks**

Part 4 of the TDG Regulations requires dangerous goods safety marks to be displayed on a means of containment containing dangerous goods in transport.

A dangerous goods safety mark can be a label, placard, orange panel, sign, mark, letter, word, number or abbreviation, or any combination of these things.

Dangerous goods safety marks are displayed on a means of containment to identify dangerous goods and to show the nature of the danger they pose. Dangerous goods safety marks give a quick identification of dangerous goods in the event of an emergency situation such as a release of dangerous goods from a means of containment.

The type of dangerous goods safety marks required will depend on the size of the container and on the classification of the dangerous goods.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

### Labels

A label must **always** be displayed on a small means of containment containing dangerous goods in transport. One label is required for the primary class, as well as one for each subsidiary class of the dangerous goods.

Labels for the primary and subsidiary classes can be displayed on any side, except the top or bottom, of a small means of containment, and on the shoulder of cylinders.

### Placards

As per Section 4.15 of the TDG Regulations, the **primary class placard** for each dangerous good contained in a large means of containment must be displayed on each side and on each end of the large means of containment. Each placard only needs to be displayed once on each side and each end regardless of how many products in the large means of containment correspond to that class (primary or subsidiary).

#### Example:



Dangerous Goods at JAG include:

- Fuel – gasoline, diesel
- Propane
- Batteries
- Compressed gases
- Shop materials (AE)

### Incidents

All incidents involving the transportation of dangerous goods must be reported to management and follow the procedures outlined in the Incident Investigations section.


### DEFENSIVE DRIVING

#### Before you Drive

Make sure you are comfortable with your physical, mental and emotional state, your vehicle and the conditions in which you will be driving. If you have doubts about any of them, do not drive.

Your ability to drive can change from one day to the next. Illness, fatigue, prescription and over-the-counter drugs, stress and your mental or emotional state can greatly diminish your ability to operate a motor vehicle. You should consider these factors before you begin driving, and you should not operate a motor vehicle when you are not fit to do so.

- Don't drive when you are sick or injured.
- Don't drive when you have been drinking alcohol or taking any drug or medication that may reduce your ability to drive.
- Don't drive when you are tired. You might fall asleep at the wheel, risking the lives of others on the road. Even if you don't fall asleep, fatigue affects your driving ability. Your thinking slows down, and you miss seeing things. In an emergency, you may make the wrong decision, or you may not make the right decision fast enough.
- Don't drive when you are upset or angry. Strong emotions can reduce your ability to think and react quickly.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5, 8, 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

Driving is based on three ideas: visibility, space and communication.

- Visibility is about seeing and being seen. You should always be aware of traffic in front, behind and beside you.
- Managing the space around your vehicle lets you see and be seen and gives you time and space to avoid a collision. Because the greatest risk of a collision is in front of you, stay well back.
- Communicate with other road users to make sure they see you and know what you are doing. Make eye contact with pedestrians, cyclists and drivers at intersections and signal whenever you want to slow down, stop, turn or change lanes.

As a driver, a preventable crash is one in which you failed to exercise every reasonable precaution to prevent the crash. In general, to be a defensive driver, you need to:

- Assume other drivers will make errors.
- Keep the lights, mirrors, windows, and windshield of the vehicle clean.
- Adjust your vehicle's mirrors to assure maximum viewing area from your seating position.
- Adjust speed, position, direction, and attention to be able to maneuver safely if a hazard develops.
- Scan far enough ahead to be able to react safely to approaching situations.
- Scan frequently to the side and rear for passing or approaching vehicles.
- Tap your horn in congested areas to warn others you will be moving or use a signaller.
- Turn on the vehicle's flashers, day or night, if you pull off on the shoulder of the road or are forced to stop in a travel lane.
- When necessary, place emergency warning devices to alert other drivers that your vehicle is stopped.
- Drive according to weather conditions including reduced visibility, rain, snow, ice, loose road surfaces, and time of day.

### Negotiating Curves

While automobiles can lose traction and "slide out" of a curve at an excessive speed, commercial motor vehicles will tend to roll over. The more top heavy a vehicle is, the more likely that it will roll over rather than slide out of a curve. To be a defensive driver, you should:

- Maintain speeds below the curve advisory speed.
- Reduce speed before entering a curve.
- Stay off the roadway shoulder in curves. The right- or left-side wheels may drop or sink down into a shoulder and increase the chance of a rollover.


### Downgrades

The main reason for loss of vehicle control on downgrades is brake failure resulting from the use of improper control techniques by the driver. To be a defensive driver in negotiating downgrades, you should:

- Know the gearing on your vehicle.
- Put the truck in the proper gear, and check brake function before descending long, steep grades.
- Use a lower gear if speed cannot be controlled with light (10-psi) brake pressure.
- Apply both cab and trailer brakes. Applying only trailer brakes could cause overheating and brake failure.

### Pedestrians

Most pedestrian accidents occur when the pedestrian walks onto a roadway and into the path of an approaching vehicle. Pedestrians often misjudge the speed and closeness of a commercial motor vehicle and assume a driver can and will slow down for them.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

In addition, pedestrians think that because they can see the vehicle, the driver can see them. They often walk or stand in the blind spots in front of and to the right of a vehicle. To be a defensive driver when interacting with pedestrians, you should:

- Scan around the vehicle thoroughly when pedestrians are present
- Adjust your driving speed accordingly.
- Assume that a pedestrian will not give you the right-of-way until it is obvious the pedestrian is waiting for the vehicle to pass.
- Be extra careful at night in pedestrian areas, as pedestrians may assume you can see them because they can see the vehicle headlights so easily.

### Emergency Situations

Having emergency equipment available in the vehicle will greatly assist a driver in emergencies. To be a defensive driver when handling emergencies, you should:

- Inspect the vehicle prior to operation to assure that all emergency equipment is in place.
- Turn on emergency flashers and place emergency warning devices immediately after the vehicle stops.
- Try to coast off the travel lane, if safe to do so
- Try to extinguish a fire only if you have been trained in correctly operating the fire extinguisher and it does not put you in danger.

### Ontario Legislation

All drivers, vehicles, and roadways within the province of Ontario fall under the Highway Traffic Act (HTA) and its related regulations. The regulations that primarily affect commercial vehicle operators include:

HTA Regulation 199/07 – Commercial Motor Vehicle Inspections

HTA Regulation 424/97 Commercial Motor Vehicle Operators' Information

HTA Regulation 577 – Covering of Loads

HTA Regulation 512/97 – Critical Defects of Commercial Motor Vehicle

HTA Regulation 340/94 – Drivers' Licences

HTA Regulation 587 – Equipment (Includes Speed Limiters)

HTA Regulation 596 – General

HTA Regulation 555/06 – Hours of Service

HTA Regulation 601 – Motor Vehicle Inspection Stations


HTA Regulation 611 – Safety Inspections (Includes On-Road Standards)

HTA Regulation 363/04 – Security of Loads

### Management responsibility and commitment

JAG management understands that the safe operation of vehicles and equipment is essential to protect not only the driver or operator but also the safety of other workers and the public. Furthermore, the preservation and sustainability of the environment is essential.

The procedures and policies described in this section provide instruction, advice, and training to operators and drivers so that incidents can be avoided, and the environment protected. JAG will continue to ensure that these procedures are followed in order to comply with all regulatory requirements.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

### Company Vehicle Policy

#### PURPOSE

The purpose of this policy is to outline the acceptable practices for drivers of John Aarts Group (JAG) vehicles. At the Company's sole discretion, the Company can provide you with an appropriate Company- owned or leased vehicle for you to properly use to perform the duties and responsibilities of your position, subject to, and in accordance with, the Company's applicable policies.

#### DEFINITIONS

A "company vehicle" or "workplace vehicle" is any vehicle that the company assigns to an employee (driver) to support their transportation needs for their employment duties.

#### SCOPE

##### Vehicle Operating Requirements

Drivers who are provided access to vehicles are required to monitor the vehicle appearance, content security, and to ensure proper operation.

##### a) Pickup / Dropoff

- Vehicles parked at 3003 Page Street should be locked in the yard, with the keys stored in the lock box inside the wash bay. Access to wash bay is by Key Card, or access code provided by Supervisor or Sr. Manager.

##### b) Daily inspection


- Ensure daily inspection is completed.
- If the vehicle has a yellow commercial vehicle sticker, ensure that the inspection is documented according to the MTO guidelines in the back of the inspection book.
- Inspection sheets should be submitted daily, and no later than Monday of the following week

##### c) Cleanliness / Appearance

- Ensure the exterior of the vehicle is cleaned when required. A minimum of once per week.
  - Vehicles may be left in the yard Friday evening to receive a wash over the weekend.
- Ensure the interior of the vehicle is kept clean and safe.
  - Remove all garbage daily.
  - Always keep windows clean and clear.
  - Periodically dust/wipe down the interior of the vehicle.
- Keep tools, supplies, and equipment organized in an orderly, secure and accessible manner.
- Report any damage to seat covers requiring replacement.

##### d) Storage of valuables

- Ensure valuables are always stored / locked.
  - During the day, if vehicle left unattended in a public area, the vehicle and all doors (tailgates, toolboxes, etc.) must be locked.
  - Lasers, GPS Equipment, generators, saws must be stored inside a secured area at night, or the vehicle must be

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

stored inside a secured garage or shop.


- Vehicles may be left in the John Aarts Group yard overnight, after checking the above into Stores/Parts Department.

### e) Maintenance

- Drivers assigned vehicles are responsible for timely and routine maintenance in accordance with the company maintenance procedures located in console of vehicle (report if missing).
- Complete daily pre-trip inspection, report or repair all deficiencies immediately.
  - Submit a copy of daily pre-trip inspection to shop.
- Drivers are responsible to ensure that all required documents are in the vehicle (Ownership, Insurance Card, Inspection book).
- Complete regular 10,000km service. (Drive through Jiffy Lube or arrange appointment with closest Ford dealership).

### f) Driving

- Driving is restricted to the employee-driver, except in emergencies. Personal use of vehicle is restricted to an allowable radius of operation.
- Continued personal use must be pre-approved by your manager.
- All drivers are required to abide by all federal, provincial, and local motor vehicle regulations, laws, and ordinances. Under the Smoke-Free Ontario Act (SFOA) smoking is prohibited in workplace vehicles.
- All fines, defense costs and other legal penalties arising out of ticketed offenses are the responsibility of the driver.
- Drive vehicles in a safe and courteous manner. Be patient, avoid negative actions towards fellow drivers (ie. Road rage).
- Avoid speeding. Always operate the vehicle at safe legal speed.
- Look ahead, avoid hard acceleration or hard braking.
- Avoid extended idle time. Company and municipal policies prohibit idling longer than 2 minutes, except where the temperature is over 27 degrees or below 5 degrees Celsius.
- A driver may not operate a vehicle at any time when his/her ability is impaired, affected, or influenced by alcohol, illegal drugs, prescribed drugs, medication, illnesses, fatigue, or injury. For company sponsored social events, cabs will be provided for employee use.
- No driver may have, or permit possession of alcohol in a vehicle being used for business purposes.
- No driver may have or permit possession of illegal drugs in a vehicle at anytime.
- The driver is responsible to ensure all occupants are wearing safety belts when operating or riding in a vehicle.
- Riders are not permitted in rear cargo, or on running boards, of truck.
- Drivers are responsible for ensuring that all doors are locked while the vehicle is in motion.
- All accidents must be reported immediately to your Supervisor or Sr. Manager. Reporting requirements include completion of any forms or HCSS Safety E-Form, utilized by the company for the purpose of documentation and recordkeeping.
- All vehicle problems, or defects, must be reported immediately to your Supervisor or the shop. Reporting requirements include completion of any forms utilized by the company for the purpose of documentation and recordkeeping.
- Drivers are required to immediately notify their Supervisor of any tickets, accidents, or other violations they have received while driving. Note: Speeding includes driving too fast for the conditions, e.g. rain, fog and heavy traffic.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5, 8, 13
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## COMPANY VEHICLES AND DRIVERS

- Traffic Violations are not considered reimbursable costs. All violations, including parking tickets and speeding tickets, will be the responsibility of drivers. Violations will be subject to disciplinary action, at the sole discretion of the company and this may include the loss of use of the company vehicle and/or termination, in accordance with the severity of the violation.
- Violations of any of the above provisions may result in disciplinary action ranging from a written reprimand to a temporary or permanent loss of company driving privileges, suspension or dismissal.
- If you must make or take a business or personal phone call, use the autodial and hands-free option on your cellular phone. Be sure the phone is mounted in the vehicle or stored in a compartment. Driving safety always takes precedence over talking on the phone.

### g) Post-Incident Drug and Alcohol Testing

When a driver is involved in a motor vehicle incident, drug and alcohol testing must be conducted, with the driver's consent, if any of the following conditions occur:


- There is a human fatality;
- There is bodily injury with immediate medical treatment required away from the scene or;
- There is disabling damage to any motor vehicle requiring a tow.

According to standards, the drug testing should be administered within 32 hours. The alcohol testing should be administered within 2 hours, but no later than 8 hours after the incident.

### Procedures:

1. JAG has an account setup with a professional third-party drug and alcohol testing company/consultant.
2. Testing shall be conducted as soon as possible from the time the incident took place:
  - a. The driver will contact their Supervisor/Manager in the event of an incident;
  - b. If criteria deem necessary, the testing company will be contacted by the Supervisor/Manager or Safety Team;
  - c. If able, the driver will contact the testing company if a Supervisor/Manager is unavailable (ie. after-hours);
  - d. Testing company contact information will be available in all company vehicles and at the main office.
3. A representative from the testing company will contact and meet with the driver(s) at an approved location to collect samples for drug and alcohol testing. Testing will consist of an oral fluid test (drugs) and a breath or saliva test (alcohol).
4. If the driver(s) is unavailable because they are in police custody or medical treatment, testing will be conducted at the earliest time possible, subject to testing deadlines.
5. All testing will be in accordance with legislation and industry standards. The professional testing consultant will be used by the company throughout the testing and reporting process.
6. Tampering or attempting to tamper with a test sample is prohibited.
7. Where a driver refuses to undergo drug and alcohol testing, the company may take such refusal into consideration in determining the appropriate course of action with respect to such driver, which could include discipline, loss of use of the company vehicle, or termination.
8. Management will discuss the results of all testing with the driver(s), CEO, and legal counsel where required.
9. A driver who tests positive for drugs and/or alcohol will be advised of the positive test result, and will be suspended.




 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Company Vehicles and Drivers</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5, 8, 13	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 12		

## COMPANY VEHICLES AND DRIVERS

with pay immediately, pending an investigation by the company. Return to duty testing may be required at the discretion of management.

10. In the absence of legislated thresholds, the drug levels that will be reported as a positive result will be based on industry norms as recommended by the professional consultant engaged by the company.

  
 \_\_\_\_\_  
 Signature

February 10, 2023  
 \_\_\_\_\_  
 Date





## Personal Protective Equipment Policy

While the John Aarts Group recognizes that personal protective equipment is at the bottom of the hierarchy of controls and should only be used as a last resort in the protection of our workers; at times PPE is the only practicable way we can protect our workers from jobsite hazards.

With that in mind JAG, has developed a PPE policy and procedure to help ensure activities requiring PPE in our places of business are documented. In our commitment to health and safety JAG has commissioned workplace hygiene studies to help determine suitable PPE required for certain tasks and will provide appropriate PPE to all our workers.

John Aarts Group has various PPE requirements for its worksites. This includes:

- Construction/Mining sites: As a minimum, CSA approved hard hat, CSA approved high visibility reflective clothing, and CSA approved safety footwear (footwear to be supplied by employee).
- Industrial Plants: CSA approved hard hat, CSA approved high visibility reflective clothing, and CSA approved safety footwear, as required in certain locations.
- Offices: No minimum PPE requirements


Certain tasks/locations require specific PPE, including respiratory, eye, hearing and hand protection. The PPE programs and procedures will outline the selection guidelines as well as the use, care, and fitment of required PPE.

It is the worker's responsibility to inspect their PPE daily/before use and keep them in good condition. PPE found to be defective should be tagged and removed from service immediately.

Signature

February 10, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 6	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

### PURPOSE

The purpose of this procedure is to identify the specific requirements for the selection, use, and requirement for personal protective equipment (PPE).

The John Aarts Group acknowledges that there is a hierarchy of controls and will protect our workers from workplace hazards using the control strategies in order of: Elimination, Substitution, Engineering, Administrative, PPE.

### DEFINITIONS

#### Control:

Procedures, methods, tools, machines, or training adopted to minimize risks, injury, adverse health effects and damage to equipment or the environment.

#### Competency:

Capable to apply or use related knowledge, training, experience, skills, and abilities required to successfully perform risk analysis as set out in the OHSMS as it applies to a job, task, operation or function in a defined work setting.

#### Hazard:

A source of potential damage, harm or adverse health effects on something or someone

#### Human Factors:

Human factors (also known as ergonomics) is the study of how humans behave physically and psychologically in relation to particular environments, products, or services.

#### JHA:

A documented hazard, risk, and control assessment completed at the time and place of a specific task or job.

#### Daily Safety Meeting:

An active discussion between supervisors, employees, and visitors where job safety information including scope of work, hazards, JHA and other safety information is communicated

#### Personal Protective Equipment (PPE)

Equipment worn to minimize the exposure to hazards. It is a type of control.


### SCOPE

Personal Protective Equipment as a control is not desirable. PPE is only to be considered if other methods of control are not practicable or if it is used as a supplemental control.

The following procedure applies to all workplace parties – from Senior management to visitors – at all specified John Aarts Group worksites.

Requirements for specialized PPE will be communicated by JAG supervision to workers at the daily safety meeting, during the JHA (if applicable), and/or at the time tasks are assigned to workers.

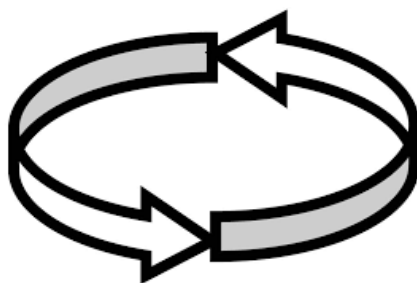
#### Basic PPE

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 6
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

### Head Protection

Head protection must be worn if there is a risk of impact, laceration, penetration, or contact with electrical hazards. Examples of these hazards are: falling objects; head striking a fixed object; potential of accidental contact with live electrical hazards. All hardhats should be worn facing forward. Only hard hats with the following image stamped on them may be worn backwards.




- Hard hats must be CSA approved – Class E, Type 1 or Type 2
- They consist of an outer shell and a four-point inner suspension
- Hard hats should be inspected before each use for cracks, deformation, or other damage. If found defective tag it and remove it from service immediately. Let your supervisor know and a replacement will be given out
- Hard hats should not be painted by the user
- Only hard hat compliant stickers and wraps should be applied
- Consult the manufacturer's instructions for use and care
- Ensure that the hard hat is properly adjusted to your head before beginning any work

### High Visibility Clothing

All reflective safety vests and clothes must meet the current CSA standards and be Class 2, Level 2 as a minimum. High visibility clothing is a layer of protection when working near any kind of mobile equipment, vehicular traffic, and low light/low visibility areas.

- Activities that take place during nighttime hours require the use of reflective arm and legs bands as well as JAG minimum standards
- Per the Regulations any "worker who may be endangered by vehicular traffic shall wear a garment that covers at least his or her upper body and has the following features:
  - a. The garment shall be fluorescent blaze or international orange in colour.
  - b. On the front and the back, there shall be two yellow stripes that are 5 centimetres wide. The yellow area shall total at least 500 square centimetres on the front and at least 570 square centimetres on the back.
  - c. On the front, the stripes shall be arranged vertically and centred and shall be approximately 225 millimetres apart, measured from the centre of each stripe. On the back, they shall be arranged in a diagonal "X" pattern.
  - d. The stripes shall be retro-reflective and fluorescent.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 6	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

- e. If the garment is a vest, it shall have adjustable fit.
- f. A nylon vest to which this section applies shall also have a side and front tear-away feature.
- g. In addition, a worker who may be endangered by vehicular traffic during night-time hours shall wear retro-reflective silver stripes encircling each arm and leg, or equivalent side visibility-enhancing stripes with a minimum area of 50 square centimetres per side.
- Do not use plastic vests as they are highly flammable
- It is JAG's policy that shirts with sleeves at least six inches in length and long pants must be worn on all jobsites unless you are provided with a uniform
- Disposable coveralls may be provided for use on certain jobsite
- High visibility vests and coats are supplied to workers by JAG. Different sizes are available
- Follow the manufacturer's instructions for care, cleaning, and storage

### Safety Footwear

Safety footwear is a last line of defense to protect the feet from crushing and penetrating hazards. Any time an activity involves working around heavy objects being moved, sharp objects, slippery or hot surfaces, corrosive or irritating chemicals, or electrical hazards safety footwear must be worn. All safety footwear must be CSA-approved Grade 1 with a reinforced toe and insole. They are easily identifiable by their green CSA triangle and Omega symbol, pictured below.




All boots must be kept in good condition and inspected daily before use. Follow the manufacturer's instructions for care, cleaning, and use.

### Specialized PPE

The selection and use of specialized PPE is to be determined through risk analysis carried out by JAG health and safety in collaboration with supervisors and workers. Workers are also encouraged to review JAG's safe work practices, safe job procedures, and/or HIRA list. A daily JHA or safety meeting is the best time for supervisors and workers to communicate the need for specialized PPE. Feedback from workers about new procedures, different types of PPE to examine, and potential administrative controls from safety meetings/JHA's should be reported to their direct supervisor and discussed with the JAG safety team. The John Aarts Group is constantly striving for improvement in our health and safety policies and procedures and recognizes that workers have insights into their tasks and activities that management may not.

### Eye Protection

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 6	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

There are many different types of eye protection. In order to ensure the proper eye protection is selected potential hazards must first be identified. Always consult the manufacturer's instructions for limitations, care, cleaning, and use. Regardless of the type of eye protection required they must all meet current CSA standards. Regular prescription glasses are not suitable as eye protection.

Basic eye protection includes:

- safety glasses – with or without side shields
- over glasses protection
- mono-frame goggles
- eye-cup goggles

JAG finds that safety glasses with side shields (for flying object and impact protection) provides sufficient protection for typical tasks carried out by field staff. However, if basic eye protection does not provide sufficient protection for potential hazards eye and face protection may be required. Examples include:

- welder's shields/helmets
- filter plates/lenses
- metal mesh face shields
- impact/chemical resistant face shields

Regardless of the eye protection used, ensure it fits properly – improper fitting eye protection greatly decreased its efficacy.

### Hearing Protection

Depending on the noise level and duration, hearing loss may result if proper hearing protection is not used. There is a risk of hearing loss in environments where workers are exposed to 85 dBA or more over an eight-hour period. However, for every 3dBA added to 85, the allowable exposure time is halved.


Typically – correctly used – foam ear plugs are provided with an NRR of 29dB. These generally provide sufficient protection to JAG workers in the field. However, there are some situations where further over-ear protection is required. Always select PPE based on the task being carried out. If there is any doubt consult your supervisor, daily hazard assessments or SWP's. Consult the manufacturer's instructions for levels of protection provided, care, cleaning, and use recommendations.

JAG will always try and utilize engineering controls (such as new operators cabs) before PPE to reduce workers exposure to noise. However, this is not always sufficient or practicable. Based on a workplace hygiene study commissioned by JAG, equipment operators should still almost always wear some form of hearing protection in older machines, even with all windows and doors closed.

### Workplace Hygiene Study (J-AAR sampled)

In July and September 2014, JAG hired an independent hygiene consultant (MACCK) to test employee noise exposure in the workplace. Employees were tested in the following lines of employment:

1. Top man

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 6
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

2. Pipe layer
3. Operator
4. Labourer- cutting asphalt and concrete

### Noise

The study determined that some workers required a form of hearing protection for an 8 hour or more workday. The report, "MACCK Air and Noise Sampling Survey" is available for all the details and data. Based on the information our PPE policy regarding noise is:

### Machine Operation

- All employees should wear appropriate hearing protection when operating machinery
- Foam earplugs in this application are generally acceptable, but earmuffs are required when operating open cabs (packers)

### Labour

- The labourer and pipe layer exceeded the allowable noise regulations, but all employees must wear the appropriate hearing protection when working with equipment such as quick-cut saws and plate tampers. Foam earplugs are generally acceptable in the trench for a pipe layer but are not enough protection in applications using very loud tools like the quick-cut saw. Earmuffs are needed in that application.


Hearing protection must be used where engineering controls are not practicable to ensure workers are not exposed to noise that exceeds 85 dBA over an 8-hour time period. At client sites there may be other noise regulations or requirements in place. Please observe all signs or instructions.

**14-4: Typical Noise Levels of  
Tools and Equipment**

Equipment	Noise Level (dBA)
Cranes	78 - 103
Backhoes	85 - 104
Loaders	77 - 106
Dozers	86 - 106
Scrapers	97 - 112
Trenchers	95 - 99
Pile drivers	119 - 125
Compactors	90 - 112
Grinders	106 - 110
Chainsaws	100 - 115
Concrete saw	97 - 103
Sand blasting nozzle	111 - 117
Jackhammers	100 - 115
Compressors	85 - 104

**NOTE:** These noise levels are measured at the operator's position.

### Respiratory Protection

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 6
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

As with all specialized PPE, before selecting the appropriate type of respiratory protection a hazard assessment must be completed. For typical activities on JAG sites, a disposable N95 respirator can be used to provide sufficient protection from particles and dust.

If a task requires further protection, or prolonged use, a half face respirator and filters/cartridges will be provided (picture below). Regardless of the type of respiratory protection used, they must comply with current CSA standards. Always consult the manufacturer's instructions for limitations, care, use, cleaning, and storage.




Filter/cartridge selection will be determined by the type of hazards in the work environment. Typically, for particulates, P100 filters are used. In order to select the correct filter/cartridge a hazard assessment must be carried out by a competent person and supervisor.

If a respirator is selected as PPE, the user must be fit-tested and trained in its use. This is carried out by JAG's health and safety team. Fit testing will be conducted at least once every two years. Records will be stored on HCSS Skills Server.

General respirator care and use guidelines:

- The respirator should be inspected before each use for defect. If any defects are found, tag and remove from service immediately
- Examine all plastic parts for cracking/wear/damage
- Examine the face seal for cracks, tears, or dirt build up. Dirt build up can break the seal
- Examine exhalation valves for distortion, cracks, tears
- To safely clean your respirator, remove all cartridges/filters. Disassemble the respirator. Immerse it in warm, plastic safe, cleaning solution. Scrub with a soft bristle brush or cloth until clean. Solution/water should not exceed 49 degrees Celsius. Rinse in fresh warm water. Place dry respirator in a clean bag when not in use.
- Respirators should be fit tested as required
- Workers requiring a respirator should be clean shaven around the face seal. Facial hair can cause a loose seal

### Workplace Hygiene Study (J-AAR)

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 6
	APPROVAL DATE: February 10, 2023		DATE OF ORIGIN: 02/02/2023
			REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

In July and September 2014, JAG hired an independent hygiene consultant (MACCK) to test employee dust exposure in the workplace. Employees were tested in the following lines of employment:

1. Top man
2. Pipe layer
3. Operator
4. Labourer- cutting asphalt and concrete

The study concluded that the labourer cutting asphalt and concrete using the quick-cut saw had very high levels of total respirable particulate and respirable silica. It was recommended that if a worker were to perform similar tasks for most of their shift, then a full face-piece respirator with P100 filters be used. However, if the cutting was intermittent and only done for a portion of the shift, then the N95 mask is sufficient.

Workers should also try and use water as a dust suppressant, work upwind of any dust generated and use rotation with other workers for this task if possible.

The study also recommended that operators working outside of cabs (packers) use a dust mask as well.

### Hand Protection

- Determine the correct type of glove to be worn based on a hazard assessment
- Consult manufacturer's instructions for limitations, care, and use of the glove selected
- Ensure that the glove selected is well fitting

### Working at Heights


As per section 26 of the Regulations, where a worker is exposed to a fall hazard they are to be protected by the following means, in ranked order:

1. Guardrail system
2. Travel restraint system
3. Fall restricting system
4. Fall arrest system
5. Safety net

If the installation of a guard rail is not practicable or if a worker faces any kind of other hazard which requires them to don working at heights PPE; they must have specialized training administered through an approved training provider in the province of Ontario. Working at heights PPE includes:

- CAN/CSA-Z259.1-05: Body Belts and Saddles for Work Positioning and Travel Restraint
- CAN/CSA-Z259.2.5-12: Fall Arresters and Vertical Lifelines
- CAN/CSA-Z259.2.2-98 (R2004): Self-Retracting Devices for Personal Fall-Arrest Systems
- CAN/CSA-Z259.2.3-99 (R2004): Descent Control Devices
- CAN/CSA-Z259.10-06: Full Body Harnesses
- CAN/CSA-Z259.11-05: Energy Absorbers and Lanyards
- CAN/CSA-Z259.12-01 (R2006): Connecting Components for Personal Fall Arrest Systems
- JAG issues harnesses to each worker that needs them. All harnesses must be visually inspected before use by the worker and formally at least monthly by a competent worker.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 6
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

- Tripods and SRL's are most commonly used in confined space work. As part of the confined space entry permit SRL's and tripods must be inspected before use.
- SRL-LE's must be used when performing work at the leading edge. This a common occurrence at CFL sites
- Dutch Brothers cement plant as well as J-AAR's asphalt plant have written Working at Heights procedures for areas where workers may be exposed to a fall hazard. These must be followed. Supervisors are to train any new workers/subcontractors on these procedures at the time of their orientation.

All working at heights equipment must meet current CSA standards.

### **Sun Protection**

If working in the sun for prolonged periods of time JAG recommends a form of sun protection be used.

- Apply a broad-spectrum sunscreen with a sun protection factor (SPF) of 30 or greater
- Be sure to cover your ears and the back of your neck
- Apply sunscreen every two hours
- Use an SPF 30 or greater lip balm and reapply every two hours
- Wear clothing that covers as much of the skin as possible. Tightly woven material will offer greater protection as a physical block to UV rays
- If you sweat heavily, you may need to reapply more often
- Try to find a shaded area for breaks and lunch
- Examine your skin regularly for any unusual changes

### **MINIMUM PPE REQUIREMENTS**

**All PPE used in John Aarts Group workplaces must be CSA approved.**

#### **J-AAR and CFL**

##### **Worksites:**

At minimum head protections, foot protection (minimum six-inch-high work boot. Safety shoes are not sufficient), and high visibility clothing are required at all jobsites. Task specific PPE must be used as determined by your supervisor.

##### **Asphalt Plant:**

Protective footwear is required at all times/locations at the asphalt plant.


Outside of the plant office high-visibility clothing and a hard hat are required at all times. Task specific PPE must be used as required.

##### **Offices:**

No minimum PPE requirements at offices

#### **Dutch Brothers**

##### **Plants:**

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 6
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 12		

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

Protective footwear is required at all times/locations at the asphalt plant. Follow the designated PPE zones for further requirements.

Drivers must adhere to site-specific PPE requirements at any jobsite they may deliver too.

### **AAROC Aggregates**

The area from the gate to the scale house is generally considered a 'Safe-Zone.' No PPE is required if you remain in this area. Once you have passed the scale the following is required:

#### **Head Protection**

Type 1 or 2 hardhat

#### **Foot**

Protective footwear is required at all times

#### **Clothing**

High-visibility clothing with retro-reflective strips on an orange or yellow background. Black and blue shirts/sweaters with retro-reflective strips are not considered adequate.

Task specific PPE must be used as required. If you have any questions or concerns talk to your supervisor.

### **AAROC Equipment**

#### **Foot**

Safety footwear is required at all times in the shop

#### **Clothing**

Provided coveralls are part of Aaroc Equipment's uniform. They meet JAG safety standards. Any substitutions must be discussed with your supervisor.

Task specific PPE must be used as required. If you have any questions or doubts discuss with your supervisor.

Field techs must adhere to all PPE requirements on any jobsite that they are sent.


## PROCEDURE

### **Identify the Job, Process Or Job Steps:**

- Identify the Job Process or task to be evaluated
- Document the job, process, or steps on the appropriate form (PPE request form, HIRA, Project Hazard Assessment or JHA)

### **Identifying Hazards**

- For site specific safety plans and daily risk assessments, review the job, procedure or task breaking it down into main steps (task that will move the process forward) and document them on the appropriate forms. This may include the PPE request form.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 6	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

- Identify all potential and actual hazards associated with the task and the working environment
- Consider the hierarchy of controls. What hazards can be dealt with at the source or along the path?

### Select the appropriate PPE for the identified Hazards

- Select the correct kind of PPE based on the hazards identified that could not be sufficiently dealt with before the worker.
- Ensure the PPE is appropriate by consulting the manufacturer's instructions

### Inspect PPE at Required Intervals:

- All PPE must be visually or formally inspected before use depending on the type of PPE. Any defective PPE should be tagged and removed from service immediately. Inform JAG supervision so replacements can be provided.
- PPE must undergo an inspection per manufacturer's instructions

### Don/Doff the PPE

- Follow manufacturer's instruction for the correct procedures to don and doff the PPE safely

### Clean PPE

- Following manufacturer's instruction for the correct procedures clean your PPE. This is another good time to give it an informal inspection

### Store PPE

- Following the manufacturer's instructions safely store your PPE until it is next required.

## RESPONSIBILITIES

### Senior Management


- Assist in the development of the PPE program
- Ensure appropriate PPE is obtained and used where applicable
- Review the PPE program as required – at least annually
- Review the Act and Regulations to ensure JAG's PPE program is compliant
- Ensure PPE required is obtained and made available on worksites
- Follow up on findings regarding new/more efficient PPE or work procedures

### Supervisors

- Ensure workers are following the PPE program
- Ensure any actual or potential hazards are identified and effectively communicated to the worker
- Distribute new PPE as required
- Ensure no defective PPE is used
- Ensure PPE inspections are completed as required

### Workers

- Work in accordance with instruction tools and protective devices provided
- Ask for clarification if unclear about information provided or task assigned

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 6	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

- Fully and actively participate in the hazard assessment process and discussion
- Completed PPE inspections as required

### Health and Safety Team

- Arrange with management and supervisors to ensure all required PPE is obtained and distributed as necessary
- Arrange for training as required
- Perform respirator fit tests
- Collect and store all relevant documentation under the PPE program

### Health and Safety Committee/Rep

- Review policies and procedures as required
- Participate in assessments as required
- Provide recommendation for change

### Subcontractors

- Abide by JAG's PPE program

### Visitors

- Abide by JAG's PPE program

## REQUIREMENTS

### Documentation

- Hazard Identification and Risk Assessment Matrix
- Job Hazard Analysis form
- Site Specific Safety plan
- Environmental Management Plan
- Safe Job procedures
- Safe Work Practices
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Mining Regs 854/90

### Training

- Hazard recognition and control
- Job Hazard Analysis
- Responsibilities as per legislation and the HSMS
- Site specific safety plan
- Selection, care, and use of protective devices required
- Working at Heights


## DOCUMENT AND RECORD CONTROL

Any documents or records generated for this procedure will be stored on HCSS/J-AAR servers indefinitely. Any hard copies generated will be stored at the JAG head office for two years after completion of the project.

## ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by JAG.

## REVIEW

 <b>JOHNS MANVILLE GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Personal Protective Equipment</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 6
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## PERSONAL PROTECTIVE EQUIPMENT PROCEDURE

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.



## Preventative Maintenance Policy Statement

The John Aarts Group has adopted this Preventive Maintenance Policy to ensure the ongoing health and safety of our clients and employees, and to maximize the useful lifespan of our existing equipment. JAG will follow all manufacturers' recommended maintenance schedules to ensure the ongoing efficiency and effectiveness of equipment.

Effective equipment maintenance will ensure that our equipment works consistently and as intended. It ensures that the process is under control and that all hazards are efficiently controlled. An equipment maintenance program will save time and money by reducing unscheduled downtime. Regular maintenance is essential to minimize the potential for unexpected major repairs.

The Preventative Maintenance program will consist of the following:

1. Equipment, Machine, and Vehicle inventory – A comprehensive list of all equipment, machines, and vehicles owned, rented or leased by each John Aarts Group division which contains all required information.
2. Preventative Maintenance Schedules – These maintenance schedules vary by piece or type of equipment and are set by the manufacturer and legislation.
3. Preventative Maintenance Actions – All maintenance activities performed must be documented. This includes the unit number, date, and actions performed.


All John Aarts Group heavy equipment operators conduct a daily pre-use inspection which includes logging hours, checking fluids, and visual inspections. All maintenance activities that are not part of a daily pre-use inspection, are completed by designated, qualified, and competent personnel.

It is JAG policy that all equipment, machines, vehicles, and tools which have been found to be defective or overdue for maintenance should be logged and AAROC Equipment should be contacted.

Signature

February 10, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Preventative Maintenance Procedure</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5
	APPROVAL DATE: February 10, 2023		DATE OF ORIGIN: 02/02/2023
	# OF PAGES: 6		REVISION # 1

## PREVENTATIVE MAINTENANCE PROCEDURE

### PURPOSE

Preventative maintenance programs are enacted to ensure that all equipment used at John Aarts Group worksites are in a safe, useable condition. This is achieved by ensuring that all equipment is maintained as per the manufacturer's instructions and all legislative requirements

### DEFINITIONS

#### **Preventative Maintenance:**

Planned actions undertaken to retain an item at a specified level of performance by providing repetitive scheduled tasks that prolong system operation and useful life: inspection, cleaning, lubrication, and part replacement

### SCOPE

All equipment, vehicles, tools, and devices owned by, rented, or leased to the John Aarts Group falls under this policy and procedure.

A good preventative maintenance (PM) program reduces downtime, saves costs of otherwise preventable repairs, increases the life span of the equipment, and increases the safety of employees.

The John Aarts Group's PM procedure is broken into three main components:

1. Inventory
2. Preventative Maintenance Schedule
3. Preventative Maintenance Activities

See the **Equipment Maintenance Policy** as **Appendix A** at the end of this section.

A preventative maintenance schedule cannot be created without first having a comprehensive list of all equipment which needs to be maintained. The John Aarts Group's list of equipment is created for all tools, equipment, vehicles, and devices which are over 10 horsepower.

#### **Inventory:**


A preventative maintenance schedule cannot be created without first having a comprehensive list of all equipment which needs to be maintained. The John Aarts Group's list of equipment is created for all tools, equipment, vehicles, and devices which are over 10 horsepower.

The inventory will be created, and respective service schedules will be adhered to.

#### **Required Information:**

For each piece of equipment on the inventory list the following information is required (where applicable):

- Make and Model
- Unit number if owned
- Serial number or VIN
- Required maintenance activities
- Required frequencies of the maintenance activities

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Preventative Maintenance Procedure</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 6		

## PREVENTATIVE MAINTENANCE PROCEDURE

- Date/hours in/hours out (or kilometers) of last service

The required maintenance activities will be determined through a review of the manufacturer's instructions, applicable legislation, industry standards and discussions with the equipment managers.

The inventory list – as well as all required maintenance activities – will be updated with the acquisition of new equipment as well as annually to ensure accuracy and completeness.

### Preventative Maintenance Schedule

Using the inventory list, a preventative maintenance schedule will be generated for each piece of equipment. This will be implemented to ensure that all required PM activities are planned, scheduled, and performed at the required intervals.

All preventative maintenance or unscheduled repairs of owned equipment is sent to AAROC Equipment. AAROC Equipment is a specialized equipment company with licensed, qualified, technicians. An exception to this would be daily cleaning and minor maintenance activities (ie checking fluids, greasing etc.) performed by field staff, who are instructed by a competent individual. No JAG employee should ever carry out work for which they are not qualified and/or designated to do.

The schedule will take into consideration the manufacturer's instructions/intervals, any applicable legislation, as well as input from the technicians at AAROC Equipment. Each piece of equipment may have varying schedules.

### Preventative Maintenance Activities:

All preventative maintenance activities will be carried out by qualified staff at AAROC Equipment or by rental house staff if the equipment is rented or leased.

Company provided vehicles should only be maintained by licensed 310s or 310T technicians as required.

All service schedules and work orders are stored on E360/JAG servers.

### Documentation:

All preventative maintenance activities should be documented. This documentation should also include any remarks noted by the tech that may result in a safety concern/failed part.


Documentation should include:

- Make and model
- Unit number if owned
- Serial number or VIN
- Maintenance activities carried out
- Required frequencies of the maintenance activities
- Date
- Hours or kilometers

## PREVENTATIVE MAINTENANCE PROCEDURE

**Input:**



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Preventative Maintenance Procedure</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## PREVENTATIVE MAINTENANCE PROCEDURE

- Newly purchased equipment will be added to the inventory list.
- All the required information for that unit will be documented and kept on the list

### Schedule Created:

- A PM schedule will be created for each unit on the inventory list
- This schedule will be created by taking all relevant information into consideration, including: the manufacturer's instructions/intervals; any applicable legislation; as well as input from the technicians at AAROC Equipment. Each piece of equipment may therefore have varying schedules

### Monitoring:

- The hours or kilometers, since last PM, and the operating conditions of each unit will be monitored to ensure the PM schedule is being followed

### PM Activities:

- As the schedule dictates, PM activities will be carried out and documented by qualified workers at AAROC Equipment

### Review:

- The PM schedule will be reviewed at least annually to ensure it is compliant with all relevant legislation as well as current manufacturer's instructions and the company's goals

### Defective Equipment:

JAG employees are required to perform a daily/pre-use inspection of all equipment on site. If during the inspection any equipment, tool, or device, is found to be defective or unsafe in any way, the operator must contact AAROC Equipment for instructions, which may include lock and tag, and removal from service immediately. The operator's supervisor must also be notified. AAROC Equipment will conduct appropriate repairs before it is used again.

## DEFECTIVE EQUIPMENT PROCEDURE

### Inspect:

- All equipment must be inspected daily/pre-use

### Defective Equipment found:

- Note all defects on the inspection form. Contact AAROC Equipment


### Tag out/Lock out if applicable:

- The piece of equipment should be locked out and tagged, if required. AAROC Equipment will provide instructions

### Notify supervision:

- Supervisors should be made aware of the situation as soon as possible

### Repair or Replacement:

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Preventative Maintenance Procedure</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## PREVENTATIVE MAINTENANCE PROCEDURE

- The defective piece of equipment will be out of service until it is repaired. This can either happen on site, or a replacement piece of equipment will be arranged for and the defective equipment will be repaired in the AAROC Equipment shop.

### RESPONSIBILITIES

#### Senior Management

- Ensure that all applicable legislation and other requirements are identified
- Review and approve any changes required
- Ensure that the equipment, materials and protective devices are provided, maintained in good condition and used as prescribed.
- Ensure the PM schedule is adhered to for all equipment under their control
- Assist in the development of the PM inventory list and schedule

#### Supervisors

- Ensure the PM schedule is adhered to for all equipment at their workplace
- Follow the defective equipment procedure when informed
- Ensure operators are completing daily pre-use inspections

#### Workers

- Conduct daily pre-use inspections for all equipment used
- Inform your supervisor if defective equipment has been found
- Do not use equipment you know to be unsafe/defective

#### Health and Safety Team

- Identify all required legislation and other requirements applicable
- Advise senior management of any changes to requirements
- Conduct an annual evaluation with senior management

#### Health and Safety Committee/Rep

- Ensure compliance of all requirements when performing inspections
- Report all issues found to supervisors

#### Subcontractors

- Report and defective equipment found to JAG supervision
- Do not operate any equipment found to be unsafe/defective

#### Visitors

- Abide by all workplace specific health and safety policies and rules


### REQUIREMENTS

#### Documentation

- Workplace inspections
- Identified legislation and other requirements
- Records of Training
- Manufacturer's instructions

#### Training

- Task specific training

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Preventative Maintenance Procedure</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 5	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## PREVENTATIVE MAINTENANCE PROCEDURE

### **Appendix A: Equipment Maintenance Policy**

The employee understands and agrees to ensure the following maintenance policy is followed during their employment at JAG.

#### **The operator will:**

##### Circle Check

1. Perform and document a daily circle check prior to operating a machine to inspect for leaks, cracks or other issues which could be detrimental to the operation of the machine and/or the safety of themselves or co-workers. All deficiencies will be documented on the inspection books or app provided. Any deficiency that affects the safety or durability of the machine will be reported immediately to AAROC Equipment. Submit the hard copy inspection sheets weekly with your timesheet or digitally on the app.

##### Idling Policy

2. Vehicle and equipment idling policy requires the responsibility of the operator to perform an engine shut down if it's expected that engine idle time will exceed 3 minutes. This positive action will reduce emissions and noise pollution, reduce maintenance and fuel costs, prolong warranty coverage, avoid negative perception of idling company vehicles and is beneficial for our environment.  
In extreme conditions or for health and safety reasons, a supervisor may choose to temporarily override certain conditions of this policy, however the idle policy will remain as stated unless otherwise directed by a supervisor.

##### Cab Cleanliness Policy


3. Please ensure windows are cleaned every morning, garbage is removed every evening and the cab floor swept every night.

##### Lube & Grease

4. Lube and grease all fittings (not connected to an auto-lube system) during the work day and no later than at the end of their work day.
5. Monitor that the auto-lube system has an adequate supply of grease and that all grease points are receiving grease.
6. Ensure that all vital fluid levels are within operating range while operating a machine.

##### Vandalism protection/ organization / serviceability safety

7. Ensure that all applicable guards are in place at the end of the shift.
8. Ensure that the machinery is parked in a well-lit location, if available.
9. Ensure that the machinery is parked near the site access, beside the other machinery on the project. Machinery should be parked perpendicular to the road when feasible.
10. Ensure machinery is parked in such a way as to relieve any sources of potential energy or potential safety hazards.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Preventative Maintenance Procedure</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 5
	APPROVAL DATE: February 10, 2023		DATE OF ORIGIN: 02/02/2023
			REVISION # 1
		# OF PAGES: 6	

## PREVENTATIVE MAINTENANCE PROCEDURE

11. The operator will ensure that all padlocks are installed and secured and that all doors are closed and locked.

If the employee is not completely sure or aware of the correct procedures to accomplish the above tasks, they agree to refer to the operator's manual located with the machine and/or contact the AAROC Equipment repair shop for clarification.

### ENFORCEMENT


Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by John Aarts Group.

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### DOCUMENT CONTROL

All PM documentation created internally or received from AAROC Equipment will be stored on the JAG/HCSS servers indefinitely.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Spills</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 11
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aird</i>	# OF PAGES: 4	

## SPILLS POLICY

### DEFINITIONS

According to the Ministry of the Environment, Conservation and Parks:

**Spills means a discharge:**

- into the natural environment
- from or out of a structure, vehicle or other container
- that is abnormal in quality or quantity in light of the circumstances of the discharge

### SCOPE

You must report a spill if it:

- causes harm or material discomfort to any person
- injures or damages property or animal life
- impairs the quality of the natural environment air, water or land
- causes adverse health effects
- presents a safety risk
- renders property, plant or animal life unfit for use
- leads to the loss of enjoyment of the normal use of property
- interferes with the normal conduct of business

In some cases, you do not have to report a spill. O. Reg. 675/98 under the EPA classifies 11 types of spills, circumstances, industry type or activities that exempt you from reporting. If you are unsure, it's best to contact the Spills Action Centre."

### PROCEDURE


Spills don't have to be chemical in nature. Any material that is abnormal in quality or quantity discharged into the natural environment is classified as a spill (i.e. silt into a body of water). In order to prevent spills and conduct proper clean-up and disposal, the following procedures will be used:

**Prevention of Spills/Leaks/Discharges**

Appropriate storage containers must be used for all hazardous substances and stored in a manner to prevent contact with incompatible materials and to prevent damage. Use the SDS as required. Daily circle checks of vehicles, equipment and machinery must be conducted by the operator.

**Containment of Spills/Leaks/Discharges**

Workers must be careful when dispensing oils, greases or other chemical materials. Use caution when handling products to prevent overfilling or spills. Spill containment equipment (kits) must be maintained on site by JAG or

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Spills</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 11	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Arto</i>	# OF PAGES: 4	

## SPILLS POLICY

subcontractors, in case of emergencies. Supervisors must be familiar with the use and limitations of equipment. Spill kits will typically be located in JAG supervisor vehicles or in the site trailer.

### IN CASE OF A SPILL

1. If equipment/machinery is involved, shut it off if able;
2. Contain spill immediately if safe to do so;
3. Notify supervisor and workers in vicinity;
4. Participate in reporting the incident

All spills/leaks or discharges must be cleaned up recognizing worker and public safety first.

Proper protective and clean-up equipment must be readily available and used.

Always refer to the SDS for proper clean-up and disposal procedures.

Time is of the essence when cleaning up a spill.

### Options to reduce spill area:

1. Use absorption materials in the spill kit.
2. Use earth berms
3. Eliminate any pressures or flows if safe to do so. (i.e. Turn off machine)


### Disposal of waste material

The supervisor must contact management and arrange for proper disposal. This may include a truck(s) transporting larger quantities of waste material to an approved facility (i.e. landfill, soil remediation facility).

### Reporting of Spills/Leaks/Discharges:

- Workers must report all incidents of spills, leaks or discharges to their supervisor.
- The supervisor will immediately notify management to discuss if a spill incident report needs to be completed. The spill will be cleaned-up regardless.
- Management will determine if the spill must be reported to the MECP as per the legislative requirements.

### Who to notify of a spill?

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Spills</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 11
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Arto</i>	# OF PAGES: 4	

## SPILLS POLICY

It shall be the responsibility of management to ensure that the notification requirements established under section 92 of the Environmental Protection Act are fulfilled. Notification should be made as soon and as quickly as possible under the circumstances.

Management shall ensure that the following notification occurs:

- the 24-hour Ministry of the Environment, Conservation and Parks (SAC) - Spills Action Centre, 1-800-268-6060;
- the regional or local municipality where the spill occurs;
- the owner of the pollutant if it is known or can easily be ascertained;
- the person having control of the pollutant where the identity of that person is known or may be easily determined; and
- where necessary, the local police or public authorities.

### Provide the following information, if available:

- Name of company or individual responsible
- Location of the spill
- Your name and telephone number
- Time of the spill
- Type and approximate quantity of material discharged and any associated hazards
- Status, including corrective actions being taken to control the spill

### What is the Spiller's responsibility?


- Notify the municipality and MECP SAC
- Ensure public safety and protection of the environment
- Stop, contain and clean up the spill
- Dispose of the spilled material appropriately
- Remediate the site, if necessary
- Cooperate with affected parties and enforcement groups
- Prepare a written report
- Investigate and implement a corrective / preventative action plan, if necessary

### Preparation of an Incident Report

An incident report shall be prepared by management. The report shall be made available to an MECP inspector only upon request.

### The Incident Report shall include:

- the date, time, location and duration of the release of the pollutant;
- type of pollutant released;

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Spills</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 11
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: <i>Ryan Aird</i>	# OF PAGES: 4	

## SPILLS POLICY

- approximate quantity released;
- the circumstances and cause of spill;
- details of the contaminant and clean-up efforts and the names of all those involved in the clean up;
- an assessment of the effectiveness of the containment and cleanup efforts;
- the method used to dispose of the pollutant;
- details relating to any matter, thing, plant or animal or any part of the natural environment that is affected;
- location of the disposal site; and
- any potential adverse effects caused by the spill.





## Investigations and Reporting Policy Statement

The John Aarts Group is committed to providing safe, healthy work environments to all our employees. The reporting and investigation of workplace injuries, illnesses, incidents, near misses, and property damage plays a vital role in this. By reporting all incidents JAG can determine root causes and try to ensure that no similar incident happens again.

All workers have a responsibility to report all injuries, illnesses, incidents, near misses and property damage to their supervisor immediately. JAG subcontractors must report to John Aarts Group's supervision as well as their own. Supervisors will start an incident investigation when required.

All employees of JAG will be trained in the company reporting procedure as well as any relevant legislative requirements. Those involved in the investigation are responsible for determining root causes of the incident, as well as any preventative or corrective measures.


Senior management will be aware of all investigative findings and will ensure all affected workplace parties are provided information as needed.

The John Aarts Group will always work in compliance with all legislation including all reporting requirements.

Signature

February 10, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Incident Investigation and Reporting Procedure</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 10
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## INCIDENT INVESTIGATION AND REPORTING PROCEDURE

### PURPOSE

Incident reporting and investigation is necessary to provide documentation for health and safety related issues regarding all workplace parties at John Aarts Group projects, worksites, offices, and plants.

Investigation and reporting is a critical part of any high functioning health and safety system. It is a key tool for finding the causes of incidents in our workplaces. From there, appropriate corrective action plans can be created.

### DEFINITIONS

#### **Critical Injury:**

An injury of a serious nature that:

- A. places life in jeopardy,
- B. produces unconsciousness,
- C. results in substantial loss of blood,
- D. involves the fracture of a leg or arm but not a (singular) finger or toe,
- E. involves the amputation of a leg, arm, hand or foot but not a (single) finger or toe,
- F. consists of burns to a major portion of the body, or
- G. causes the loss of sight in an eye

#### **Medical Aid (MA):**

Treatment from a legally qualified medical practitioner or a registered nurse who holds an extended certificate of registration under the Nursing Act.

#### **Reportable Occurrence:**

See O.Reg 420/21 and the OHSA

#### **Occupational Illness:**

A condition that results from exposure in a workplace to a physical, chemical or biological agent to the extent that the normal physiological mechanisms are affected, and the health of the worker is impaired thereby and includes an occupational disease for which a worker is entitled to benefits under the Workplace Safety and Insurance Act, 1997

#### **Lost Time Injury (LTI):**


An Injury which directly leads to the loss of income due to the fact that the worker is unable to return to work

### SCOPE

All incidents must be reported to and documented by the John Aarts Group. This will also ensure that all required documentation is available for the affected parties and act as a trigger for an investigation where required. The subsequent investigation into reported incidents will allow JAG to find root causes and take preventative measures and corrective actions to ensure there is no recurrence.

#### **Reporting**

All employees, subcontractors, and visitors must report all hazards and incidents to JAG supervision immediately after becoming aware of them. This can be done verbally/over the phone to expedite the process. JAG supervision will then ensure that the correct documentation and, if necessary, subsequent investigation procedures are carried out. All incidents – regardless of outcome—must be reported. Incidents will include, but are not limited to:

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Incident Investigation and Reporting Procedure</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 10
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 4		

## INCIDENT INVESTIGATION AND REPORTING PROCEDURE

- accidents, near-misses, injuries, illnesses, medical aid, first aid occurrences, property damage, utility strikes, spills, traffic incidents, hazardous conditions and any other health, safety, and environmental issues regardless of severity

John Aarts Group supervision will immediately take action to mitigate any additional consequences as required. This will be done in accordance with all relevant legislation.

Workers may report incidents and hazards directly to John Aarts Group management using HCSS or by traditional methods of communication.

The JAG health and safety team reviews all reported incidents regardless of severity and determines appropriate follow up on a case-by-case basis.

All incidents must be reported to and documented by the John Aarts Group. This will also ensure that all required documentation is available for the affected parties and act as a trigger for an investigation where required. The subsequent investigation into reported incidents will allow JAG to find root causes and take preventative measures and corrective actions to ensure there is no recurrence.

### Investigation

After the initial reporting procedure has taken place JAG Health and Safety, in conjunction with Management, will conduct follow up investigations.

All John Aarts Group Health and Safety team members are provided adequate training in carrying out workplace investigations. JAG health and safety will carry out all investigations with help from supervisors and senior management when necessary. When required, the workplace health and safety representative/JHSC will also take part.

Incident and Investigation reports must be completed in their entirety. Any form not completed, will be followed up by the JAG health and safety team. Any corrective and/or preventative actions stemming from the investigation will be recorded by JAG health and safety and these actions will be communicated to management. Scheduled toolbox talks may be used to communicate to all workers the corrective actions. JAG supervision will implement the corrective and preventative measures at their respective worksites.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## Section: Incident Investigation and Reporting Procedure

PREPARED BY: Health and Safety Team

COR Elements: 10

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

## INCIDENT INVESTIGATION AND REPORTING PROCEDURE

The chart below outlines reporting standards:

<u>Description</u>	<u>Notify</u>	<u>Timeline</u>	<u>Report</u>	<u>Section</u>
<b>Fatal or critical Injury</b>	MOL inspector– verbal	Immediately	By phone	OHSA Sec 51(1)  O. Reg. 420
	Company H&S rep	Immediately	Verbal / by phone	
	JHSC (if applicable)	Immediately	Verbal / by phone	
	Trade union (if applicable)	Immediately	Verbal / by phone	
	MOL – written	Within 48 hours of occurrence	Written by Employer only	
	WSIB	Within 3 days	WSIB Form 7	
<b>Injuries causing lost time, or requiring medical attention or aid</b>	MOL	Within 4 days of the occurrence	Written by Employer only	OHSA Sec 52(1)  O. Reg. 420
	Company H&S rep			
	JHSC (if applicable)			
	Trade union (if applicable)			
	WSIB	Within 3 days of knowledge	WSIB Form 7	
<b>Occupational illness</b>  (with or without a claim being filed by or on behalf of the worker)	MOL	Within 4 days of being advised	Written by employer. Can use WSIB Form 7	OHSA Sec 52(2)  O. Reg. 420
	Company H&S Rep or to JHSC (if applicable)			
	Trade Union (if applicable)			
	WSIB	Within 3 days of knowledge	WSIB Form 7	
<b>Occurrence (prescribed)</b>	MOL	Within 2 days of the occurrence		OHSA Sec 53
	Company H&S rep			



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## Section: Incident Investigation and Reporting Procedure

PREPARED BY: Health and Safety Team

COR Elements: 10

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### INCIDENT INVESTIGATION AND REPORTING PROCEDURE


incident)

JHSC (if applicable)

Trade union (if applicable)

Written by constructor of project

O. Reg.  
420

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Incident Investigation and Reporting Procedure</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 10
	APPROVAL DATE: February 10, 2023		DATE OF ORIGIN: 02/02/2023
			REVISION # 1
		# OF PAGES: 4	

## INCIDENT INVESTIGATION AND REPORTING PROCEDURE

### RESPONSIBILITIES

#### Senior Management:

- Ensure all employees receive required training and instruction
- Ensure employees work in accordance with the Act and all applicable Regulations
- Ensure all incidents are being reported as per JAG policies and procedures
- Be a member of the investigation team when required
- Ensure all incidents are followed up accordingly
- Review reported findings with supervisors
- Ensure all preventative and corrective measures are being implemented on worksites by supervisors

#### Supervisors:

- Ensure all incidents are properly reported
- Immediately respond to all reported incidents/hazards
- Ensure all required incidents are reported to management/JAG health and safety
- Assist in incident investigations when required
- Implement all corrective and preventative measures determined by the investigation
- Work in accordance with the Act and all applicable Regulations

#### Workers:

- Report all incidents and hazards to supervisors
- Participate in any workplace investigations as required by answering questions, providing statements, etc.
- Work in accordance with the Act and all applicable Regulations

#### Health and Safety Team:


- Provide instructions and clarifications to all workers about reporting at the time of on-boarding/orientation
- Ensure all supervisors have access to incident reports
- Review all incident reports and follow up as needed
- Ensure all identified corrective and preventative actions are communicated to all relevant parties
- Follow up with supervisors to ensure all corrective and preventative actions have been implemented
- Track the efficacy of new corrective and preventative measures throughout the company and follow up as required

#### Health and Safety Committee/Rep:

- Be a member of the incident investigation team when required
- Assist in investigations when required
- Report any hazards and incidents to supervisors

#### Subcontractors:

- Assist in investigations when required
- Report any hazards and incidents to JAG supervision

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Incident Investigation and Reporting Procedure</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 10	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 4		

## INCIDENT INVESTIGATION AND REPORTING PROCEDURE

### Visitors:

- Assist in investigations when required
- Report any hazards and incidents to JAG supervision

### REQUIREMENTS

#### Documentation:

- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Mining Regs 854/90
- HCSS incident reporting forms
- Investigation package

#### Training:

- Hazard recognition and control
- Investigative procedures

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by John Aarts Group.

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### DOCUMENT CONTROL

All documents and records generated as part of this procedure will be stored on the JAG and HCSS servers indefinitely. JAG health and safety will track and record all preventative and corrective actions across all places of business to determine efficacy.



## MANAGEMENT REVIEW

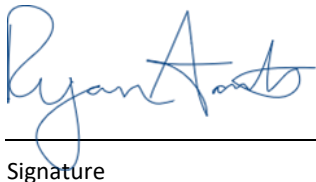
Senior management at the John Aarts Group is committed to having the best possible Occupational Health and Safety Management System. A requirement of this commitment is to review the OHSMS regularly to evaluate the effectiveness of all sections. Additional tools used for this review include:

- Previous internal audits, including previous COR audits
- JHSC meeting minutes
- Recommended corrective actions
- External communications
- The status and outcomes from incident reports/investigations
- External circumstances such as new legislation or new technology/industry procedures

Management reviews will take place at least annually at a dedicated safety meeting.

Senior management is committed to an annual review of the OHSMS using the information above. During this annual review, Senior Management will identify health and safety goals for the company and create a continual action plan laying out the path to reach those goals and benchmarks for the next year.

All approved changes to the OHSMS will be communicated to all employees through announcements, safety board postings, annual safety meetings, or toolbox talks.



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Signature

February 10, 2023

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Date



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Management Review</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 14	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## MANAGEMENT REVIEW PROCEDURE

### PURPOSE

The John Aarts Group's Occupational Health and Safety Management System and all supplemental documents and records must be reviewed regularly – at least annually – to ensure compliance with relevant legislation and to ensure it is meeting company goals and expectations.

### SCOPE

All JAG policies and procedures should be reviewed on an as needed basis – at least annually. Where changes are made it is important to have a procedure in place to ensure the right people are reviewing the right objectives and information, and changes are being communicated effectively.

### Health and Safety Document Package

John Aarts Group health and safety will prepare a document package for senior management at the beginning of the review.

This document package will include at a minimum:

- A brief evaluation of the effectiveness of all the elements the OHSMS
  - o This will be determined based on feedback from supervisors, worker reps/JHSC members as well as an analysis of lagging and leading indicators and actual statistics for each division
- The status of action items from previous reviews as outlined in JAG's meeting minutes/Continual Action Plan document
- Results of internal health and safety audits
- Results of COR audits
- Recent workplace incidents and investigations
- Any new/changing legislation
- External communication
  - o MLTSD visits, memos orders; WSIB correspondence, IHSA notices/best practices/events, manufacturer's bulletins/updates, etc.
- A breakdown of Health and Safety statistics throughout the entire organization
- Whether or not our health and safety goals have been met
- Status of incident report/investigations and how the implementation of corrective actions has gone
- Changing external circumstances such as new/changing legislation, new technologies, new industry practices, etc.
- Any identified barriers to worker participation


Based on all the above JAG health and safety in conjunction with Senior Management will create recommendations for improvement and complete a corrective action plan for the whole organization.

### Annual Management Meeting

JAG health and safety will provide the above-noted document package to management on an annual basis.

### Section 25(2)(j)

Section 2(2)(j) of the Act States the employer's duty to "prepare and review at least annually a written occupational health and safety policy and develop and maintain a program to implement that policy;"

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Management Review</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 14	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## MANAGEMENT REVIEW PROCEDURE

This procedure provides the necessary steps and documentation to ensure compliance.

### PROCEDURE

#### Health and Safety briefs senior management

- JAG health and safety will bring senior management a completed health and safety document pack for review

#### Recommendations for improvement

- Based on the documentation brought forward by health and safety, a corrective action plan for each organization will be created by senior management. This will include recommendations for improvement and who is responsible for enacting them. This document will become part of the review package for the next annual review as well as the outline for the quarterly management review

#### Approval Process

- After review and recommendations have been made Senior management will issue a letter of approval. This letter will be signed, dated, and outline the approved changes to each document, policy, and procedure in the OHSMS.

#### Revision

- With the approval letter JAG health and safety will draft revised versions of all changed documents, policies, and procedures. These will be signed off on by Senior management before the annual general meeting each year unless a situation/legislation dictates an emergency revision.

#### Communication

- JAG will communicate the approved changes to all employees in one of the following ways:
  - At the annual general meeting – all JAG employees attend an annual general meeting. Any changes to the OHSMS will be communicated in person at this time
  - At a site-specific orientation – on any project where JAG is the constructor a site-specific orientation must be given to all involved workplace parties. Changes will be worked into these orientations to ensure that all field level staff/subcontractors/guests are aware of them
  - Through scheduled toolbox talks – JAG health and safety will create and circulate toolbox talks on a weekly basis. These talks can be used to inform all workers of the approved changes. This is the preferred choice if circumstances dictate an unscheduled review as they can be rolled out the fastest.


### RESPONSIBILITIES

#### Senior Management

- Participate in the annual review
- Sign and authorize updates made to JAG's OHSMS
- Participate in meetings as required
- Participate in the creation of the review package by providing input and documentations when requested
- Review documentation and processes with your supervisors when required

#### Supervisors

- Ensure required documentation is completed
- Participate in the review process by providing input

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Management Review</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 14
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	# OF PAGES: 4		

## MANAGEMENT REVIEW PROCEDURE

- Communicate jobs trends to management

### Workers

- Participate in the review process by providing input when requested
- Participate in daily safety meetings
- Participate in the completion of all required paperwork as required

### Health and Safety Team

- Schedule and hold annual management meetings
- Record, distribute, and store meeting minutes
- Create an annual report for management review
- Assist senior management in determining areas for review, company goals, and appropriate benchmarks
- Assist in the development of the JAG orientation packages
- Create toolbox talks to communicate approved changes when required
- Create, distribute, and record communication to all appropriate workplace parties as required

### Health and Safety Committee/Rep

- Participate in the review process by contributing input as required
- Participate in all required safety meetings and inspections
- Complete all required documentation as required

### Subcontractors

- Review policies and procedures as required
- Participate in the review process by contributing input as required
- Report all incidents to JAG supervision
- Participate in all required safety meetings
- Complete all required documentation as required


### Visitors

- Review policies and procedures as required

## REQUIREMENTS

### Documentation:

- Hazard Identification and Risk Assessment Matrix
- Job Hazard Analysis form
- Site Specific Safety plan
- Environmental Management Plan
- Safe Job Procedures
- Safe Work Practices
- Site statistics
- IHSA best practices and reports
- Incident reports and investigations
- MLTSD correspondence
- WSIB correspondence
- Industry newsletters
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Mining Regulation 854/90

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Management Review</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 14
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## MANAGEMENT REVIEW PROCEDURE

### Training:

- Hazard recognition and control
- Job Hazard Analysis
- Responsibilities as per legislation and the OHSMS
- Site specific safety plan
- Company Orientation
- Internal Auditor
- Selection, care and use of protective devices required

### ENFORCEMENT


Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by the John Aarts Group.

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### DOCUMENT AND RECORD CONTROL

JAG health and safety will remove outdated documents from circulation and ensure that the approved, updated documents, processes and procedures are communicated to JAG employees and subcontractors as required. Any generated documentation will be stored on the HCSS or JAG servers indefinitely.

 <b>COMPANY WIDE HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Management of Change</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 14	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 5	

## MANAGEMENT OF CHANGE PROCEDURE

### PURPOSE

The John Aarts Group's Occupational Health and Safety Management System and all supplemental documents and records must be reviewed when changes occur. Regardless of whether these changes are internal or external in nature, this procedure is in place in order to ensure the OHSMS is compliant with current legislation and the company's needs and goals.

### SCOPE

Where changes have been made in JAG processes and procedures, it is necessary to have the changes undergo an assessment and thorough management approval process. The assessment is to ensure that all changes are compliant with all legislation and in line with JAG's needs and goals.

#### Health and Safety Document Package

The John Aarts Group health and safety team will prepare a document package for senior management when required. This will be completed before the annual management review meeting or when external circumstances dictate.

This document package will include at a minimum, health and safety assessments of:

- Changes in legal requirements
- Significant changes to JAG:
  - o Processes and procedures
  - o Control measures
  - o Equipment
  - o Organization
  - o Scope of work
  - o New locations
- The introduction of new processes, products, or services in the industry
- The introduction of new developments in Occupational Health and Safety
- Any other change which may be relevant to the John Aarts Group's company goals and needs


Based on all the above JAG health and safety in conjunction with Senior Management will create recommendations for improvement and complete a corrective action plan for the whole organization.

Senior management will have the final approval of all changes after being briefed by JAG health and safety.

#### Hazard Assessment and Control

After Senior management has approved any changes to the JAG OHSMS and related processes, procedures, and equipment, the health and safety team will conduct or update all relevant hazard assessments related to the changes. This includes updates to HIRA's, Safe Work Procedures, Site-Specific hazard assessments, Workplace specific hazard assessments (for industrial environments), environmental assessments, and required training matrices.

If during this process it is discovered that the proposed changes have created new hazards to our employees, changes will not be approved.

 <b>COMPANY WIDE HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Management of Change</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 14	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 5	

## MANAGEMENT OF CHANGE PROCEDURE

### Section 25(2)(j)

Section 2(2)(j) of the Act states the employer's duty to "prepare and review at least annually a written occupational health and safety policy and develop and maintain a program to implement that policy;"

This procedure provides the necessary steps and documentation to ensure compliance.

### PROCEDURE

#### Health and Safety briefs senior management

- JAG health and safety will bring senior management a completed health and safety document package for review

#### Changes Proposed

- Based on the documentation brought forward by health and safety, senior management will identify appropriate changes

#### Approval Process

- After review and recommendations have been made Senior management will approve or reject any changes. This will be signed, dated, and outline the approved changes to each document, policy, and procedure in the OHSMS.

#### Revision


- With approval, JAG health and safety will draft revised versions of all changed documents, policies, and procedures. These will be signed off on by Senior Management before the annual general meeting each year unless a situation/legislation dictates an emergency revision.

#### Hazard Assessment and Control

- JAG health and safety will put all approved changes through a hazard assessment as described above – and update any controls which may be affected by the change.

#### Communication

- JAG will communicate the approved changes to all employees in one of the following ways:
  - At the annual general meeting – all JAG employees attend an annual general meeting. Any changes to the OHSMS will be communicated in person at this time
  - At a site-specific orientation – on any project where JAG is the constructor a site-specific orientation must be given to all involved workplace parties. Changes will be worked into these orientations to ensure that all field level staff/subcontractors/guests are aware of them
  - Through scheduled toolbox talks – JAG health and safety will create and circulate toolbox talks on a weekly basis. These talks can be used to inform all workers of the approved changes. This is the preferred choice if circumstances dictate an unscheduled review as they can be rolled out the fastest.

 <p><b>COMPANY WIDE HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Management of Change</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 14	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 5	

## MANAGEMENT OF CHANGE PROCEDURE

### RESPONSIBILITIES

#### Senior Management

- Participate in the annual review
- Authorize updates made to JAG's OHSMS
- Participate in meetings as required
- Participate in the creation of the review package by providing input and documentations when requested
- Review documentation and processes with your supervisors when required

#### Supervisors

- Ensure required documentation is completed
- Participate in the review process by providing input
- Communicate jobs trends to management

#### Workers

- Participate in the review process by providing input when requested
- Participate in daily safety meetings
- Participate in the completion of all required paperwork as required

#### Health and Safety Team


- Schedule and hold annual management meetings
- Record, distribute, and store meeting minutes
- Create an annual report for management review
- Assist senior management in determining areas for review, company goals, and appropriate benchmarks
- Assist in the development of the JAG orientation packages
- Create toolbox talks to communicate approved changes when required
- Complete updated hazard and risk assessments for all approved changes before communication
- Create, distribute, and record communication to all appropriate workplace parties as required

#### Health and Safety Committee/Rep

- Participate in the review process by contributing input as required
- Participate in all required safety meetings and inspections
- Complete all required documentation as required

#### Subcontractors

- Review policies and procedures as required
- Participate in the review process by contributing input as required
- Report all incidents to JAG supervision

 <b>COMPANY WIDE HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Management of Change</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 14	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 5	

## MANAGEMENT OF CHANGE PROCEDURE

- Participate in all required safety meetings
- Complete all required documentation as required

### Visitors

- Review policies and procedures as required

## REQUIREMENTS

### Documentation

- Corporate Hazard Identification and Risk Assessment Matrix
- Job Hazard Analysis form
- Site Specific Safety plan
- Environmental Management Plan
- Safe Job procedures
- Safe Work Practices
- Site statistics
- IHSA best practices and reports
- Incident reports and investigations
- MLTSD correspondence
- WSIB correspondence
- Industry newsletters
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Mining Regulation 854/90


### Training

- Hazard recognition and control
- Job Hazard Analysis
- Responsibilities as per legislation and the OHSMS
- Site specific safety plan
- Company Orientation
- Internal Auditor
- Selection, care and use of protective devices required

## ENFORCEMENT

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 <b>COMPANY WIDE HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Management of Change</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 14	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 5	

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**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

**Section: Safe Work Practices**

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### External Factors

#### General

- The biggest external hazards on jobsites are weather related
- Working in extreme heat, cold, active weather, and high UV days are all workplace hazards not often thought about
- While some of these practices/policies are not explicitly legislated, the general duty clause applies
- Heavy physical work coupled with extra clothing or PPE in a humid environment can greatly affect a worker's ability to cope with the heat. This is especially true for an individual who is not acclimatized.

#### Heat Stress

Heat stress is the challenge your body faces due to hot conditions. If your body is unable to cool itself, you can suffer heat related illnesses, which in some cases can lead to death.

All workers need to recognize the early signs and symptoms of heat stress and know how to treat heat-related illnesses.

#### HEAT STRESS DISORDERS

ILLNESS	SIGNS AND SYMPTOMS	FIRST AID
Heat rash	Red, bumpy rash with severe itching.	Change into dry clothes and avoid hot environments. Rinse skin with cool water.
Heat cramps	Painful, involuntary cramps commonly in the most worked muscles which occur at work or later at home. They are serious because they are a warning of other more serious illnesses	Move to a cool area; loosen clothing; gently stretch affected muscles and drink an electrolyte sports beverage (i.e. Gatorade). If the cramps persist, get medical aid.
Fainting	Sudden fainting after at least two hours of work. Cool, moist skin. Weak pulse	<b>GET MEDICAL ATTENTION.</b> Assess the need for CPR. Move person to a cool area. Loosen clothing. Have the person lie down and if conscious, offer sips of cool water. Fainting may be caused by another illness.
Heat exhaustion	Heavy sweating; cool moist skin; body temperature over 38 degree C; weak pulse; normal or low blood pressure; person is tired and weak and has nausea and vomiting; is very thirsty; breathing rapidly or panting; vision may be blurred.	<b>GET MEDICAL ATTENTION.</b> This condition can lead to heat stroke, which can kill. Move person to a cool shaded area; loosen or remove excess clothing; provide cool water to drink; fan and spray with cool water. Do not leave affected person alone.
Heat stroke	High temperature (over 41 degree C) and any one of the following: person is weak, confused, upset or acting strangely; has hot dry, red skin; a fast pulse; headache or dizziness. In later stages a person may pass out and have convulsions.	<b>CALL AMBULANCE.</b> This condition can kill a person quickly. Move the person out of the sun and into shade or air-conditioning. Remove excess clothing. Fan and spray the person with cool water if they are conscious.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### **Personal Risk Factors**

It is difficult to predict who will be affected by heat stress and when; because individuals vary.

However, certain physical conditions reduce the body's natural ability to withstand high temperatures:

- Overweight
- Poor physical condition
- Previous heat illnesses
- Age (over 40)
- Heart disease or high blood pressure
- Recent illness
- Alcohol consumption (previous 24 hrs.)
- Certain medications
- Lack of acclimatization- the body will adapt when exposed to heat for a few days. It usually takes six or seven days. Although acclimatization may be lost in as little as three days.

Heavy physical work coupled with extra clothing or PPE in a humid environment can greatly affect a worker's ability to cope with the heat. This is especially true for an individual who is not acclimatized.

### **How Can Heat Stress be Controlled?**

#### ***Management shall:***

- Train and educate employees on the hazards, risks, symptoms, first aid measures and controls for heat stress and heat stress illnesses.
- Advise supervisors on the procedures for assessing and controlling heat stress hazards.
- Provide the necessary resources to control heat stress hazards (i.e. water).
- Allow sufficient time for workers to become acclimatized.
- Enforce this policy as needed.

#### ***Supervisors shall:***

- Employ work procedures to help limit the risks of working in hot environments including giving workers extra breaks, cool water and scheduling work for cooler parts of the day.
- Monitor workers for any heat stress symptoms and react accordingly when workers complain of heat stress. Job shutdown may be required.
- Advise management of any heat stress illnesses.

#### ***Workers shall:***

- Follow instructions and training for controlling heat stress.
- Be alert to symptoms in yourself and others. Advise your supervisor of any heat stress.
- Get plenty of rest and drink small amounts of water regularly.

### **Assessing Heat Stress Hazards using the Humidex**

The following four steps are designed to help determine whether conditions require action to reduce heat stress.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

**Supervisors will monitor their crews and follow these steps as needed**

### Step 1: Training

- Measurements alone cannot guarantee worker protection from heat stress. It is essential workers learn to recognize the early signs and symptoms.
- The ideal heat stress response plan would let workers regulate their own pace by “listening to their body”.

### Step 2: Workplace humidex

- A thermal hygrometer is a simple way to measure the temperature and relative humidity, however these are rarely available to supervisors. In the case where a hygrometer is not available, use the local weather data.
- Once you have the temperature and humidity, use Table A to determine the humidex value.
- From Table B select *Humidex 1* or *Humidex 2* according to the amount of physical activity involved and the level of acclimatization. Although the Heat Stress Response (Table B) is based on workplace measurements not weather reports, it can be used where specific measurements are unavailable.

### Step 3: Adjust for clothing

- The humidex plan assumes workers are wearing regular summer clothes (light shirt, pants, underwear, socks and workboots).
- If workers are wearing cotton overalls on top of clothing - add 5 ° C. to the workplace humidex measurement.
- Estimate the correction factor for other clothes or PPE.

### Step 4: Adjust for radiant heat

- For outdoor work in direct sunlight between 10 am and 5 pm – add 1-2 ° C to your humidex measurement. Adjust for cloud cover.

**The Heat Stress Plan is only a guide. Never ignore a person’s signs and symptoms. Workers should always “listen to their body”.**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

TABLE A- HUMIDEX: The Humidex value is where the temperature row and humidity column meet.

Humidex																					
	Relative Humidity (In %)																				
Temp (In °C)	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	Temp (In °C)	
49																			50	49	
48	-																		49	48	
47																		50	47	47	
46			Never Ignore someone's symptoms no matter what you measure!																49	46	46
45																	50	47	45	45	
44																	49	46	43	44	
43																49	47	45	42	43	
42															50	48	46	43	41	42	
41															48	46	44	42	40	41	
40														49	47	45	43	41	39	40	
39													49	47	45	43	41	39	37	39	
38												49	47	45	43	42	40	38	36	38	
37											49	47	45	44	42	40	38	37	35	37	
36									50	49	47	45	44	42	40	39	37	35	34	36	
35								50	48	47	45	43	42	40	39	37	36	34	33	35	
34							49	48	46	45	43	42	40	39	37	36	34	33	31	34	
33					50	48	47	46	44	43	41	40	39	37	36	34	33	32	30	33	
32			50	49	48	46	45	44	42	41	40	38	37	36	34	33	32	30	29	32	
31	50	49	48	47	45	44	43	42	40	39	38	37	35	34	33	32	30	29	28	31	
30	48	47	46	44	43	42	41	40	39	37	36	35	34	33	31	30	29	28	27	30	
29	46	45	43	42	41	40	39	38	37	36	35	33	32	31	30	29	28	27	26	29	
28	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	28	
27	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25			27	
26	39	38	37	36	35	34	33	33	32	31	30	29	28	27	26	25				26	
25	37	36	35	34	33	33	32	31	30	29	28	27	26	26	25					25	
24	35	34	33	33	32	31	30	29	28	28	27	26	25							24	
23	33	32	31	31	30	29	28	28	27	26	25									23	
22	31	30	30	29	28	27	27	26	25	25										22	
21	29	29	28	27	26	26	25													21	
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%		



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

TABLE B- RESPONSE

Humidex 1 moderate unacclimatized and heavy acclimatized work	Response Never ignore someone's symptoms no matter what you measure!	Humidex 2 light unacclimatized work (sitting/standing doing light arm work)
30-37	<b>Low</b> <ul style="list-style-type: none"><li>Alert workers to potential for heat stress.</li><li>Ensure access to water.</li></ul>	34-41
38-39	<b>Medium</b> <ul style="list-style-type: none"><li>Reduce physical activity (e.g., slower pace, double up, breaks).</li><li>Drink a cup of water every 20-30 minutes.</li></ul>	42-43
40-42	<b>Moderate</b> <ul style="list-style-type: none"><li>Reduce physical activity further.</li><li>Drink a cup of water every 15-20 minutes.</li></ul>	44-45
43-44	<b>High</b> <ul style="list-style-type: none"><li>Ensure sufficient rest and recovery time.</li><li>Severely curtail physical activity.</li><li>Drink a cup of water every 10-15 minutes.</li></ul>	46-48
45 or over	<b>Extreme</b> <ul style="list-style-type: none"><li>It is hazardous to continue physical activity.</li></ul>	49 or over

Breaks (as a general guide)- guidelines indicate increasing work breaks for heavy physical activity with high humidex readings as follows: **38-39° C- 15 min /hour; 40-42° C- 30 min/hour; 43-44° C- 45 min/hour; 45+° C- stop work until humidex is 44 ° C or less.**

Light work- sitting with light manual work with hands or hands and arms; standing with some light arm work and occasional walking

Moderate work- sustained moderate hand and arm work; arm and leg work or arm and trunk work; light pushing or pulling; normal walking

Heavy work- intense arm and trunk work; carrying; shoveling; pushing and pulling heavy loads; walking quickly.

Acclimatization- a person becomes acclimatized when the body adjusts to long-term heat exposure.

Workers performing "heavy work" could probably be considered acclimatized once we are well into the heat of summer.

Employees shall follow these guidelines

- Wear light, loose clothing
- Drink cool water - 8 oz.(250ml) – every ½ hour
- Take rest breaks as required
- Avoid coffee, tea, alcohol, drugs
- Avoid eating hot, heavy meals
- Don't take salt tablets unless a doctor prescribes them... AND LASTLY

**Everyone reacts differently. Listen to your body and stop when you need to**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### COLD STRESS

Cold stress can affect workers who are not protected against cold. When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, leading to permanent tissue damage and even death.

**Air temperature, wind speed and humidity (wetness)** are all challenges for a worker and must be counterbalanced with proper clothing, physical activity and controlled exposure.

### What is the wind-chill temperature?

At any temperature, you feel colder as the wind speed increases. It can be used as a general guideline for deciding clothing requirements and the possible health effects of cold.

WIND CHILL CHART										
		Ambient Temperature (°C)								
		4	-1	-7	-12	-18	-23	-29	-34	-40
Wind km/h	Velocity mph	Equivalent Chill Temperature (°C)								
Calm										
0	0	4	-1	-7	-12	-18	-23	-29	-34	-40
8	5	3	-3	-9	-14	-21	-26	-32	-38	-44
16	10	-2	-9	-16	-23	-30	-35	-43	-50	-57
24	15	-6	-13	-20	-28	-36	-43	-50	-58	-65
32	20	-8	-16	-23	-32	-39	-47	-55	-63	-71
40	25	-9	-18	-26	-34	-42	-51	-59	-67	-76
48	30	-16	-19	-22	-36	-44	-53	-62	-70	-78
56	35	-11	-20	-29	-37	-46	-55	-63	-72	-81
64	40	-12	-21	-29	-38	-47	-56	-65	-73	-82
Adapted from: Threshold Limit Values (TLV™) and Biological Exposure Indices (BEI™) booklet; published by ACGIH, Cincinnati, Ohio		Little danger in less than one hour exposure of dry skin			DANGER – Exposed flesh freezes within one minute			GREAT DANGER – Flesh may freeze within 30 seconds		
		Maximum danger of false sense of security								

Exposure to cold causes 2 major health risks: **hypothermia and frostbite**.

**Hypothermia** can affect workers not protected against the cold. When the body is unable to warm itself and maintain its core temperature, serious illnesses and injury can occur, leading to permanent tissue damage or even death.

HYPOTHERMIA STAGES	SIGNS AND SYMPTOMS
Mild	Shivering, blue lips and fingers, poor coordination
Moderate	Mental impairment, confusion, disorientation, inability to take precautions from the cold, heart slowdown, slow breathing
Severe	Unconsciousness, pulse difficult to find or irregular, no shivering, no detectable breathing. In severe cases, hypothermia resembles death. Treat patients as though they are alive.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### First Aid:

- Carefully move person to shelter. Sudden movements can upset heart rhythm
- Keep person awake
- Remove wet clothing and wrap person in warm covers
- Re-warm neck, chest, abdomen and groin. Do not re-warm extremities
- Apply direct body heat or use safe heating devices
- Give warm, sweet drinks, but only if conscious
- Administer CPR if necessary
- Call for emergency medical help or transport person carefully to hospital

### FROSTBITE

**Frostbite is a common injury caused by exposure to severe cold or contact with cold objects**

**It occurs more readily from touching cold metal than cold air**

**Body parts most affected include face, ears, fingers and toes**

**Symptoms vary, are not always painful, but often include a sharp prickling sensation**

**First indication is waxy looking skin that feels numb**

**Once tissues become hard, it becomes a severe medical emergency**

**Severe frostbite results in blistering that usually takes about 10 days to subside**

**Once damaged, tissues will be more susceptible in future**

### First Aid:

- Warm frostbitten area gradually with body heat. Do not rub
- Don't thaw hands or feet unless medical aid is distant and there is no chance of refreezing. Parts are better thawed at hospital
- Apply sterile dressings to blistered areas
- Get medical attention

### How can Cold Stress be Controlled?

#### **Management shall:**

- Train and educate employees on the risk factors, signs and symptoms, first aid measures and controls of cold stress and cold stress related health issues.
- Advise supervisors on the measures for controlling cold stress hazards.
- Provide the necessary resources to control cold stress hazards (i.e. heated shelters).
- Enforce this policy as needed.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### ***Supervisors shall:***

- Employ work procedures to help limit the risks of working in cold environments including giving workers sheltered breaks and backup as needed.
- Monitor the wind-chill and temperature readings at your jobsite. See Table 1
- Monitor workers for any cold stress symptoms and react accordingly.
- Advise management of any cold stress illnesses.

### ***Workers shall:***

- Follow instructions and training for controlling cold stress.
- Be alert to symptoms in yourself and others. Advise your supervisor of any cold related health issues.
- Select proper clothing to perform the job. Be prepared.

### Employees shall follow these guidelines

- Work should be paced to avoid excessive sweating.
- Clothing should be worn in multiple layers and kept dry and clean as possible.
- For work in wet conditions, the outer layer of clothing should be waterproof.
- Almost 50 percent of body heat is lost through the head. A wool knit cap or a liner under a hard hat can reduce excessive heat loss.
- Gloves should be used below -7°C for moderate work. For work below -17°C, thin polyester gloves should be worn under protective gloves.
- Have extra socks available so you can dry your feet and change socks during the day.
- Face protection, a balaclava or hard hat liner should be used.
- Eat properly and frequently. Working in the cold requires more energy than in warm weather.
- Drink fluids often. Hot non-alcoholic beverages or soup are suggested. Caffeinated drinks such as coffee should be limited.
- Alcohol should not be consumed as it impairs the body's ability to regulate temperature.
- Any worker shivering severely should come out of the cold.
- If you get hot, open your jacket but keep hats and gloves on.
- Wear one thick or two thin pairs of socks. Don't restrict blood flow with tight fitting footwear.

### **Exposure Limits**

Ontario has no legislated limits for work in cold environments; however, Table 1 below was developed to indicate threshold limit values for properly clothed workers (dry clothing) in below freezing temperatures:



## HEALTH, SAFETY & ENVIRONMENTAL PROGRAM

### Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

Air temperature (sunny sky)		No noticeable wind		8 km/h wind (5 mph)		16km/h wind (10 mph)		24 km/h wind (15mph)		32 km/h wind (20 mph)	
°C (approx.)	°F (approx.)	Max work period	No. of breaks	Max work period	No. of breaks	Max work period	No. of breaks	Max work period	No. of breaks	Max work period	No. of breaks
-26° to -28°	-15° to -19°	Normal breaks	1	Normal breaks	1	75 minutes	2	55 minutes	3	40 minutes	4
-29° to -31°	-20° to -24°	Normal breaks	1	75 minutes	2	55 minutes	3	40 minutes	4	30 minutes	5
-32° to -34°	-25° to -29°	75 minutes	2	55 minutes	3	40 minutes	4	30 minutes	5	Non-emergency work should stop	
-35° to -37°	-30° to -34°	55 minutes	3	40 minutes	4	30 minutes	5	Non-emergency work should stop			
-38° to -39°	-35° to -39°	40 minutes	4	30 minutes	5	Non-emergency work should stop					
-40° to -42°	-40° to -44°	30 minutes	5	Non-emergency work should stop							
-43° and below	-45° and below	Non-emergency work should stop									

Source: Occupational Health and Safety Division, Saskatchewan Department of Labour

### Notes

- a) This table applies to any 4-hour work period of moderate-to-heavy work with warm-up periods of ten minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour work period in a warm location. For light-to-moderate work (limited physical movement) apply the schedule one step lower. For example, at -35°C (-30°F) with no noticeable wind (row 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (row 5).

### Storms

#### If you are outdoors:

- If you hear thunder, then lightning is close enough to be dangerous. Move immediately to a place of shelter. Go to a well-constructed, enclosed building. Small, open structures do not provide protection from lightning.
- If no building is available, stay inside your vehicle or machine cab.
- Avoid water, high ground, isolated trees and power lines.
- There isn't a place outside that is safe during a thunderstorm. Make every effort to get into a solid shelter or metal-topped vehicle. If neither is available, find a low-lying area away from tall, pointy, isolated objects, crouch down and put your feet together. Do not lie down. Cover your ears to reduce the threat of hearing damage from thunder.

### Legislation

- Occupational Health and Safety Act, Section 25(2)(h)

(All tables and information taken from the "Heat Stress" / "Cold Stress" guidelines in the I.H.S.A. Construction Health and Safety Manual)



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### LADDER USE

- Select a ladder that is the correct size and type for the job
- Step ladders should only be used on a stable, level surface, with the braces locked
- Ensure that all ladders used on site are class 1A or higher (JAG allows class 2 or higher for use in offices only)
- Never carry any tools or material up or down a ladder – use a rope or pass them to another worker
- When ascending or descending a ladder always face the ladder and maintain three point of contact
- Keep ladders clean and rungs free from snow, mud, ice, grease, and other slip hazards
- Never use an aluminum ladder around any electrical equipment
- Extension ladders must be angled correctly – 4:1 ratio
- If using a ladder as a means of access/egress, ensure that it is secured at both the top and the bottom. It must also extend at least 900mm past the top surface.
- Keep the areas at the top and bottom of a ladder clear of material or debris
- Inspect the ladder before use. Tag and remove any defective ladders from service
- Do not stand on the top two rungs of a step ladder
- Work being performed on a ladder should not affect the ladders stability. If it does find another means to complete the task or reposition the ladder
- Ladders should never be used as a work surface
- Before working from a ladder conduct a ladder hazard and risk assessment
- If working from a ladder has the worker at a height of 9 feet or greater, the worker must be tied off to a sufficient anchor point independent of the ladder



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### RAMPS, PLATFORMS, RUNWAYS

- Generally – a ramp, runway, or platform must be able to support 2.4 kilonewtons of force and
- be at least 18" wide
- Maximum slope must not exceed 1:3
- Ramps that are not nearly horizontal need 1"x2" cleats spaced regularly (18") secured to the walking surface
- If there is a danger of falling material the ramp, runway, or platform must be protected by a canopy of adequate strength
- If it is possible to fall from the runway, ramp, or platform from 8 feet, or into water, or another hazard, guardrails must be installed



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### ASBESTOS IN THE WORKPLACE

#### General

- Asbestos is a designated substance in the province of Ontario
- Asbestos fibres don't break in half across their diameter (width), but rather split into thinner and thinner needle-like fibres along their length.
- An asbestos fibre can remain airborne for a long time and can easily become airborne again after it has settled if there is any air movement.
- The average diameter of an airborne asbestos fibre ranges from 0.11 to 0.24 µm, depending on the type of asbestos and are invisible to the eye.
- JAG does not perform asbestos abatement/containment in-house. If a worker comes across suspected asbestos during work; work should be stopped immediately, and JAG supervision should be notified.
- Typically for all repair, demolition or alteration projects, the owner must complete a report indicating whether any material that is likely to be handled, dealt with, disturbed, or removed is asbestos-containing material (ACM), or to be treated as ACM. The report (including drawings and plans) must show the location of the ACM and be provided to all contractors bidding on the job.
- If during work, suspicious material is discovered and not found in the report, then the constructor must report it to the Ministry of Labour. No work is allowed until the material is tested for the presence of asbestos unless the material is treated as ACM.


#### Asbestos Containing Products

Common asbestos containing products include:

- Asbestos cement products
  - This is the most typical asbestos product encountered by JAG worksites in the form of asbestos concrete pipes
- Sprayed-on fireproofing
- Pipe and boiler insulation
- Loose fill insulation
- Acoustical plaster and tiles
- Vinyl asbestos products
- Roofing felts/shingles
- Asphalt/asbestos limpet spray
- Drywall joint-filling compound
- Coatings and mastics

#### Legislation

Ontario Regulation 278/05 (Designated Substance—Asbestos on Construction Projects and in Buildings and Repair Operations) outlines safe work procedures and respiratory protection for

 <b>JOHN ARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

workers who may encounter asbestos-containing material (ACM). The Ministry of Labour uses factors to categorize the asbestos-related activity into one of three types:

- Type 1
- Type 2
- Type 3

Anybody who works in a Type 1, Type 2, or Type 3 asbestos operation must be trained by a competent person on the following:

- the hazards of asbestos exposure
- the purpose, inspection, maintenance, use, fitting, cleaning, disinfecting, and limitations of respirators
- personal hygiene and correct procedures for work with asbestos
- how to use, clean, and dispose of protective clothing

### Health Effects


- Inhalation of the airborne asbestos fibers is what causes asbestos-related diseases:
  - Mesothelioma
  - Lung cancer
  - Asbestosis
  - Other illnesses

### Procedures

- If ACM is known to exist on a project based on a report given at the bidding stage, appropriate measures to handle or work near the ACM will be in place prior to work starting.
- If ACM is discovered at a project with no advanced or prior knowledge, it must be reported to the JAG Project Supervisor. **The Supervisor must:**
  - Notify the JAG Project Manager and Constructor;
  - Notify all affected workers on site;
  - Stop work and restrict access at the location of the ACM and
  - Do not proceed with ACM related work until a plan is developed

JAG must:

- Notify the Ministry of Labour if required;
- Notify the Owner and/or Constructor;
- Develop a plan for any ACM related activity. Depending on the type of operation (1, 2 or 3), this may involve using trained JAG workers or using trained and certified subcontractors.

 <b>JOHN HARRIS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

### ERGONOMICS AND MUSCULOSKELETAL DISORDERS

Musculoskeletal disorders (MSD's) are injuries of the muscles, nerves, tendons, ligaments, joints, cartilage or spinal discs.

MSD's do not include injuries that are the direct result of a fall, vehicle collision etc....

**MSD's are the number one lost-time injury reported in Ontario**

Some recognized risk factors are:

1. Forceful Exertion- lifting, pushing, pulling and gripping tools exert force or muscle effort.
2. Repetitive Movements- performed over and over again. Painting, nailing, grinding are examples.
3. Awkward Postures- postures in which joints are held or moved away from the body's natural position. Examples include stooping, bending, kneeling and reaching.
4. Secondary Risk factors-
  - a. Contact Pressure- which is any external pressure applied to soft tissues. Holding tools that press into parts of the hand is an example.
  - b. Vibration- can cause damage to nerves and blood vessels and other soft tissues.


### Controls

Engineering Controls- are preferred measures to physically modify the forcefulness, repetitiveness, awkwardness or vibration levels of a job.

Administrative Controls- are management directed work practices to reduce or prevent exposures to risk factors. They include changes in job rules like more rest breaks or job rotation.

What can you do to reduce or prevent MSD's?

- Use carts, dollies, chains or cranes to carry materials
- Break loads into smaller units
- Exercise and stretch before starting work
- Get another person to help
- Work on materials at waist height
- Take mini rest and stretch breaks
- Use handles on tools that are more comfortable
- Use tools that are low torque, low kickback and lightweight
- Don't sit in the same position too long. Take a break and change positions

 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

### **Whole Body Vibration**

Heavy equipment operators are exposed to vibration from all types of heavy equipment. The 3 main sources of WBV are:

- low frequency vibration caused by tires and terrain
- high frequency vibration from the engine and transmission
- shock from running into potholes or obstacles

Sort term exposure to WBV can include abdominal and chest pain, headaches, nausea and loss of balance. Long term exposure can cause serious health problems related to the spine and gastrointestinal system.

Workers should be aware of the following to reduce WBV:

- Maintain the suspension system and correct tire pressure. This will help reduce WBV.
- Maintain a seat with hydraulic and air shock absorbers.

### **Manual Material Handling**

#### **General**

- Do not rush
- Use gloves if there is a risk of laceration or puncture
- Never handle material if using/ascending/descending a ladder
- Never put your fingers/hands into pinch points or create a potential pinch point when lifting heavy material manually
- Before lifting consider if there is a tool/equipment/safer workflow that could be done instead

#### **Safe Lifting Practices**

- Try and keep neutral posture throughout the lift
- If possible, use equipment or an assistive device – like a dolly or pump truck – to help move the load
- Before lifting get as close to the load as possible
- Brace with your core and lift the load with your legs. Try and keep the back out of it as much as possible
- Use your feet to pivot and turn, do not twist your back
- Lower the load slowly, try and keep the back in a neutral position
- Try and keep the load balanced between both sides of the body when possible
- When lifting objects such as lumber or pipe try and balance the load on your shoulder

#### **External Factors**

- Extra care should be given during adverse weather conditions and extreme heat and cold





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023


REVISION # 1

# OF PAGES: 34

## **SAFE WORK PRACTICES**

### **MOUNTING AND DISMOUNTING EQUIPMENT**

- Keep treads, steps, stairs on equipment/vehicles clean
- Keep boots as clean as possible
- Always mount/dismount facing the vehicle
- Always keep 3-points of contact when mounting/dismounting
- Do not carry items if unable to maintain 3-point contact when entering/exiting equipment/vehicles
- Avoid distraction when mounting/dismounting. Avoid being on your phone

 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

### RESPIRATOR CARE, USE, MAINTENANCE

#### General

- Reusable respirators are available as an increased level of protection and comfort for tasks which expose workers to respiratory hazards
- Employees must consult with their supervisor or the safety team to ensure the selection of a proper respirator for the task
- All tight fitting respirators must be fit tested. Contact the health and safety team to arrange for fit testing. More detailed instructions on the specific model will be provided at this time
- The respirator should be inspected before each use for defect. If any defects are found, tag and remove from service immediately
- Examine all plastic parts for cracking/wear/damage
- Examine the face seal for cracks, tears, or dirt build up. Dirt build up can break the seal
- Examine exhalation valves for distortion, cracks, tears
- Ensure the correct filters or cartridges are selected for the hazard – typically for dust/silica, P100 filters are acceptable

#### Fit

- Respirators should be fit tested as required
- Workers requiring a respirator should be clean shaven around the face seal. Facial hair can cause a loose seal
- A negative and positive pressure check should be conducted each time a respirator is donned

#### Cleaning

- To safely clean your respirator, remove all cartridges/filters. Disassemble the respirator. Immerse it in warm, plastic safe, cleaning solution (ie soap/water). Scrub with a soft bristle brush or cloth until clean. Solution/water should not exceed 49 degrees Celsius. Rinse in fresh warm water. Place dry respirator in a clean bag when not in use.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### SILICA IN THE WORKPLACE

#### General

- Silica is a designated substance in the province of Ontario
- Silica exists in several forms, crystalline silica is the most concerning
- Exposure to silica can cause Silicosis. This is the most significant lung disease caused by breathing mineral dusts

#### Silica Containing Products


- Common silica containing products include:
  - Concrete
  - Cement
  - Mortar
  - Brick
  - Asphalt
  - Sand
  - Stone
  - Natural rock
  - Fill, top-soil

#### Activities of Concern

- Many activities on worksite can generate silica dust. Some of which include:
  - Crushing, loading, hauling, and dumping of rock, sand, gravel, concrete
  - Cutting, chipping, drilling, and grinding of concrete, rock, or masonry
  - Demolition
  - Road construction
  - Tunneling, excavation, and earthmoving of soils with high silica content

#### Health Effects

- Prolonged inhalation of respirable dust containing silica may result in silicosis.
- The severity of silicosis depends on the concentration of silica dust to which a worker is exposed and the duration of exposure
- Crystalline silica inhaled in the form of quartz or cristobalite is carcinogenic to humans.
- There are three major types of silicosis: chronic, accelerated, and acute.
  - Chronic silicosis is most common. Symptoms may not appear for a long time, usually more than 10 years, and may progress and worsen over a period of many years. The effects are irreversible.
  - Accelerated silicosis is almost the same as chronic silicosis. However, it develops more quickly, and the lung scars show up sooner.

 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

- Acute silicosis develops rapidly. As few as 8 to 18 months may elapse from the time of first exposure to the onset of symptoms, which include progressive shortness of breath, fever, cough and weight loss. There is a rapid progression of respiratory failure.

### **Controlling the Hazard**

Workplace exposure to silica can be controlled by several strategies depending on the existing facilities, equipment and work practices. A combination of controls should include the following:

- engineering controls
- work practices and hygiene practices
- respirators and personal protective equipment
- training.

### ***Engineering Controls***

Engineering controls are methods to control silica at the source and minimize the amount that gets into the workplace air. They include:

- Workplace design which minimizes or eliminates the spread of dust
- Equipment selection and modifications
- Dust suppression (i.e. spraying water)
- Mechanical or natural ventilation

### ***Work Practices and Hygiene Practices***


Work practices and hygiene practices are on-the-job activities that reduce the exposure potential from contaminated surfaces and work areas.

- Housekeeping. Keep indoor areas clean and dust free
- Dry sweeping and air-blowing should be avoided
- Clean all dirty clothes at end of shift
- Wash hands before lunch or breaks
- No eating, drinking, smoking in dusty areas.
- Equipment air filter replacement as required
- Keep roads maintained with dust control measures (i.e. water, calcium)

### ***Personal Protective Equipment***

When the engineering controls and work practices cannot lower the concentrations of silica, then personal protective equipment must be used. Primarily, respirators must be used to prevent the inhalation of dust. Where respirators are provided, they should be appropriate for the type and the concentration of airborne silica. Workers will be trained in the use and care of the respirator. The following general use, care, and maintenance procedures should be followed whenever respirators are required:

- respirators should be used and maintained in accordance with the manufacturer's specifications
- proper seal of respirators should be checked prior to each use
- storage of respirators should be in a clean and sanitary location
- respirators assigned for the exclusive use of one worker, should be cleaned, disinfected and inspected after each shift
- any respirator parts that are damaged or that have deteriorated should be replaced before the respirator is used.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 2, 3	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

**Each worker must be fit-tested for each type of respirator to be worn.** Most fit-testing can be done in-house by the qualified testers. Written records will be kept for each worker and their test results.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES


### LOCK-OUT/TAG-OUT

All workers must know when and how to lockout and tag a vehicle, machine or tool due to a defect, hazard or because of maintenance.

- Lock-out and tagging is used to de-energize equipment and prevent unscheduled or accidental starting, moving or operating.
- Lock-out and tagging ensures a safe work environment that would normally be dangerous if equipment were to shift or operate. This is required on all equipment when performing repairs, inspections or any other time a machine is shut-down to perform work on it and the worker may be injured because of the nature of the work performed.
- Lockout will also be required when a machine is unsafe to use because of a defect or hazard (ie. no brakes on a loader).
- Small tools must be tagged out and removed from service when they are defective or hazardous (ie. a broken ladder, broken chain, leaking fuel tank on a generator). Bring all small tools to the shop for evaluation.
- Normal maintenance (ie. checking oil) does not normally require lockout because the worker has not removed any safeguards and the procedure is part of a normal daily routine. The worker is not generally exposed to any hazards. Follow manufacturer instructions for more details.
- If a guard must be removed, lockout is required.

#### The following steps shall be taken:

1. Identify all energy sources (ie. Hydraulic, Mechanical, Electrical, Chemical, Kinetic, Thermal).
  2. Identify the parts to be locked out and the method to lock them out.
  3. Notify all affected personnel.
  4. Shut the power OFF. Make sure all equipment has been de-energized.
  5. Check the moving parts to make sure they have stopped and make sure no material is rolling or falling.
  6. Install your own lock and tag at each place you isolate an energy source. If more than one worker is working, each person must install their own locks and tags.
  7. Check all switches, valves, and gauges. Try operating controls after lock-out to confirm all power is off and locked out.
  8. Turn off all controls again.
  9. Neutralize all stored energy if present
  10. Perform repairs, maintenance and all necessary work.
  11. Remove only your lock and tag
  12. Check all workers are cleared from the moving parts area. Use loud start signal (ie. horn) if possible.
  13. Start-up equipment again.
- The lock's key is only carried by the person who installed the lock.
  - If the lock has 2 or more keys that can open the lock, keep only one key and throw away the rest.
  - Remember: ONE PERSON, ONE LOCK, ONE KEY.
  - The tag shall include the name of the person, the date and the reason for the lockout.
  - Both lock and tag need to be applied.

 <b>JOHN ARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 2, 3	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

- Scissor locks will be used for multiple lockouts.
- For electrical powered equipment, the correct breaker(s) must be shut off and locked out at the electrical panel (ie. shop machinery, electric conveyors).
- Battery boxes will be used on fuel (gas, diesel) powered equipment for lockout. The positive battery cable will be removed from the battery and secured in the lock box. In a series of batteries, use the cable from the battery with wires leading to the starter motor or starter relay.

### NOTE:

**Always refer to the manufacturer instructions for their detailed lockout procedures if available.**

- The specific procedures may vary slightly depending on the equipment and set-up.
- Advise your supervisor that the equipment is locked out.

### Multiple Lockouts

When groups of workers are required to lockout and tagout at the same location, certain devices must be used so that multiple locks and tags can be installed at the same time.

These are primarily referred to as scissor lock devices. They allow multiple individual locks/tags to be installed and removed without affecting other worker's lock and tags.

**Example:**



Scissor locks can be used for electrical equipment at the breaker panel and on diesel equipment on the battery box. JAG supplies scissor locks to workers as needed.


### NOTE:

**Always refer to the manufacturer instructions for their detailed lockout procedures if available.**

- The specific procedures may vary slightly depending on the equipment and set-up.
- Advise your supervisor that the equipment is locked out.

**WHEN IN DOUBT, ASK SOMEONE WHO KNOWS**



 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

### HAND AND POWER TOOLS

#### General:

- Only trained and/or experienced employees may use/operate tools or equipment
- Tools and equipment shall not be modified, and they are to be used only for their designed purpose
- It shall be the responsibility of the employee to inspect tools and equipment prior to use and to use all tools and equipment in a safe manner
- Employees observed abusing, altering, modifying or misusing tools or equipment shall be subject to disciplinary action
- Employees shall wear all appropriate personal protective equipment while using tools and equipment
- If a tool or piece of equipment is found to be defective, the tool/equipment shall be tagged, taken out of service and sent for evaluation

#### Procedures:

##### 1. General Tool Safety

Many serious injuries have resulted from the improper use of tools and equipment. Many of these injuries could have been prevented if the rules were followed:

#### Inspection and Maintenance

- All tools will be kept in good working condition with no modifications
- The employee using the tool, must inspect it for good condition prior to use
- If the tool needs repair, send it in to Aaroc Equipment for evaluation
- If the tool is lost or missing, notify your supervisor immediately

#### Selection

- Use the right tool for the task instead of trying to make the wrong one fit.

#### Use

- When applying force with a tool, remember that it may slip, break. Watch your hands and your balance to avoid injury.
- Select the right protective equipment for the task and use it properly.
- Do not use tools and equipment that you have not been trained or are experienced in using.

#### Care

- Take proper care of your tools and equipment. Keep them stored where they will not get damaged and will not present a hazard.
- Check your tools and equipment prior to use for defects, wear, or damage. Immediately remove from service and tag any defective tools.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### 2. Hand Tool Safety

- Hand tools shall only be used for the purpose for which they are intended.
- All appropriate PPE will be worn while using hand tools.
- Self-retracting utility knives can be used when cutting certain items. They are safer than conventional utility knives or box cutters.
- Wrenches, including adjustable, pipe and socket shall not be used when jaws are sprung to the point of slippage.
- Pipe wrench parts (i.e., jaws) are not to be removed and used for anything other than the manufactured use.

Hand tools shall be tagged and removed from service if any of the following defects are present:


- Impact tools, such as hammers, chisels, with visible signs of mushrooming, cracking or bending.
- Wooden handle tools, such as hammers, picks, shovels, and brooms with visible sign of cracking, loosening or splintering of the handle.
- Wrenches, such as adjustable, combo and pipe with visible signs of bending, cracking, defective handles or other defects that impair their strength.

A portable ladder shall,

- (a) be free from broken or loose members or other faults;
- (b) have non-slip feet;
- (c) be placed on a firm footing;
- (d) where it,
  - (i) exceeds six metres in length and is not securely fastened, or
  - (ii) is likely to be endangered by traffic,be held in place by one or more workers while being used; and
- (e) when not securely fastened, be inclined so that the horizontal distance from the top support to the foot of the ladder is not less than 1/4 and not more than 1/3 of the length of the ladder.

### 3. Electrical Power Tool Safety

- All appropriate PPE will be worn while using power tools.
- Use only tools that are polarized or double insulated. Make sure the casings of double-insulated tools are not cracked or broken.
- Make sure that tool cords, extension cords, and plugs are in good condition.
- Use only 3-pronged extension cords.
- Make sure that extension cords are the right gauge for the job to prevent overheating,
  - voltage drops, and tool burnout. A 12-gauge extension cord is ideal.
- Always use a Type A ground fault circuit interrupter (GFCI) with portable electric tools
  - used outdoors or in damp or wet locations. GFCI's detect current leaking to ground from a tool or cord and shut off power before damage or injury can occur.
- Do not connect electrical power unless the operating switch is turned off.

 <b>JOHN HARRIS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

- Employees shall avoid loose fitting clothing when operating power tools.
- The power source on tools shall be physically disconnected prior to attempting any repairs or attachment replacement.
- Protective guards on power tools shall not be removed, altered or modified.
- Trigger/switch locks on power tools are prohibited.
- Electrical tools shall not be hoisted or carried by their power cords.
- Cords are tripping hazards. Route them so as to minimize interference in walkways.

A grinding wheel shall be,

- (a) marked with the maximum speed at which it may be used;
- (b) checked for defects before mounting;
- (c) mounted in accordance with the manufacturer's specifications;
- (d) operated at a speed which does not exceed the manufacturer's recommendations;
- (e) provided with protective hoods that enclose the wheel as closely as the work will permit;
- (f) operated only by workers protected by eye/face protection; and
- (g) stored where it will not be subjected to,
  - (i) extreme heat or cold, or
  - (ii) damage from impact.

A work rest for a grinding wheel shall,

- (a) have a maximum clearance of three millimetres from the grinding wheel;
- (b) be in a position above the centre line of the grinding wheel; and
- (c) not be adjusted while the grinding wheel is in motion.


Electrical power tools shall be tagged and removed from service if any of the following defects are present:

- Power cord is frayed, cut or damaged. The use of electrical tape to cover damage to cords is **prohibited**.
- Defective or faulty on/off switches.
- Loose or defective components

### **4. Air Power Tool Safety**

- All hoses exceeding 1/2" inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.
- Chicago fittings shall be pinned.
- Attachments on air tools shall be secured by retainer pins and rings.
- Do not connect air unless the operating switch is turned off.
- Do not disconnect tool until air supply is shut off and air pressure is bled off.
- Air power tools shall not be hoisted or carried by their hoses.
- Hoses are tripping hazards. Route them so as to minimize interference in walkways.

Air power tools shall be tagged and removed from service if any of the following defects are present:

 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

- Air power tools, such as air power grinders, impact wrenches with visible signs of deformities in the body of the tool, improperly functioning actuator, bent or deformed blades, or any signs of obvious damage to the air supply line fittings.
- Hoses must be visually inspected for cracking, signs of aging, worn or damaged connecting fittings, or any other obvious deformities, such as blistering or bulges.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### HOUSEKEEPING

Poor housekeeping and storage account for a significant percentage of accidents and injuries in construction.

Construction rubbish is often irregular in shape, hard to handle, and full of sharp objects. One of the biggest problems is packaging. Too often it gets removed from material and left wherever it falls. This creates tripping and slipping hazards. It also makes other hazards hard to see. Workers may also be responsible for relocating residential garbage on reconstruction projects, which can also present hazards.

#### Handling Garbage Bags and Containers

Please use the following safety procedures:

- Wear cut resistant gloves when handling waste
- Scan the garbage bag/can before you handle it for any obvious hazards
- Lift the garbage bag at the top / lift the garbage can by the handles
- Do not let the garbage bag swing across your legs/body – keep separation
- If items are heavy or awkward, get help
- Clean with sanitizer or soap/water afterwards

#### **General Housekeeping Onsite**

- Clean up as work proceeds. Check the site at the end of each day.
- Keep equipment clean and the areas around equipment free of scrap and debris.
- Secure loose or light material to keep it from blowing away in the wind.
- Keep debris and materials away from excavation and trench edges.
- Put all garbage and scrap in designated waste containers. Empty waste containers regularly.
- Keep job/office trailers clean and organized. Store materials in their appropriate locations.
- Pile or stack materials in a manner that prevents them from tipping or collapsing. Organize and store all materials, tools in proper locations.
- Try and incorporate the “3 R’s” hierarchy into site waste management:
  - Reduction
  - Reuse
  - Recycle

#### **Flammable and chemical materials**

- Remove flammable rubbish and debris immediately from the vicinity of welding, flame cutting, propane heating, grinding and other ignition sources.
- Store fuel only in containers approved by the Canadian Standards Association (CSA) or Underwriters' Laboratories of Canada (ULC).
- Refer to the safety data sheet (SDS) for specific information on each chemical product.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

### **SAFE WORK PRACTICES**

- Follow manufacturer's recommendations for chemical storage.
- Observe all restrictions concerning heat, moisture, vibration, impact, sparks, and safe working distance for chemicals.
- Have equipment ready to clean up spills quickly.
- To keep them separate for special handling and disposal later, store empty chemical containers in secure areas away from full containers.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## **SAFE WORK PRACTICES**

### **PROPANE HANDLING**

- Workers using, handling, storing, and transporting propane require TSSA approved training.
- Ensure that you have valid training before working with propane
- Propane must be secured upright – with appropriate signage – and stored outside.
- Appropriate gloves must be worn when changing a liquid propane tank
- Full and empty cylinders must be stored separately
- Fuels must be stored and carried in approved containers. Pails or loader buckets are not approved storage containers.
- No smoking is permitted within the vicinity of flammable liquids or gases.
- All tanks, cylinders and containers must be fully closed after use.
- Ensure temporary heaters are set up in a way that does not restrict access or egress to a work area
- Combustibles must be stored no closer than 10' to temporary heaters
- Temporary heaters and propane tanks must be inspected regularly for defects. Any defects found must be reported to JAG supervision as soon as possible
- Temporary heat and powered equipment can create atmospheric hazards. If you have any questions or concerns consult your supervisor or the JAG health and safety team



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: Health and Safety Team

COR Elements: 2, 3

APPROVAL DATE:  
February 10, 2023

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 34

## SAFE WORK PRACTICES

### OUTSIDE HEALTH HAZARDS

#### Animal Bites

The most common bites are from household pets, with dogs, and cats causing the most. Dogs are more likely to bite than cats; however, cats are more likely to cause infection. Bites from non-immunized animals and wild animals carry the risk of rabies. Rabies is more common in raccoons, skunks, bats, and foxes than in cats and dogs.

- Determine if the outside pet shows signs of aggressive behavior and is on a leash.
- If the pet is determined to be aggressive, contact the homeowner and ask for the pet to be placed inside of the house until the work has been completed. This will allow you to focus and be more efficient on the job. Do not attempt to complete the work if no homeowner is available to control the pet. Never leave your comfort zone.
- Cats typically mind their own business and will watch from a distance. Dogs tend to be more curious. Large dogs can knock a human to the ground. Never approach an animal that is in the process of eating.

In some cases, the bite will not break the skin but may cause damage to underlying tissue and joints. If the skin is broken, there is the additional possibility of infection as well to tendons and nerves. Dogs have powerful jaws and can cause crushing injuries to muscles, tendons, ligaments, and nerves.

Signs of an infection includes:


- Swelling
- Pain
- Discharge
- Redness around the puncture wound
- An inability to bend or straighten the finger
- A loss of sensation over the tip of the finger

#### First Aid

- Don't put the bitten area into your mouth! You will just be adding the bacteria in you.
- If the bite breaks the skin, treat it as you would a minor wound. Use soap and water or an antiseptic, or alcohol and cover it with a clean bandage
- Get tetanus immunization as soon as possible
- If the bite creates a deep puncture or the skin is badly torn and bleeding, apply pressure to control the bleeding and get medical attention right away

#### Insect Bites

The two most serious health effect from insect bites in Ontario are West Nile Virus and Lyme Disease.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team	COR Elements: 2, 3	
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

### West Nile Virus

West Nile virus is a mosquito-borne virus contracted by mosquitoes that feed on the blood of infected birds. The mosquito then passes the virus to a human host.


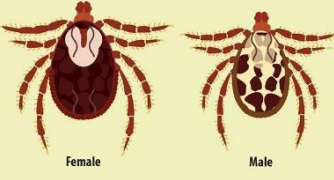

### Avoiding Mosquito Bites

- Use insect repellent on exposed skin when you go outdoors. Use an insect repellent such as those with Deet, or oil of lemon eucalyptus.
- Get double protection by wearing long sleeves during peak mosquito biting hours, and spray repellent directly onto your clothes.
- Remove standing water that may be present around the jobsite

### Lyme Disease

TICKS 101

A quick guide to Indiana tick vectors

<p><b>Black legged/Deer/Lyme disease tick (<i>Ixodes scapularis</i>)</b>  Transmits Lyme disease, anaplasmosis, babesiosis and Powassan encephalitis  Widely distributed in the Northeast and upper Midwest  Bite risk: Nymphs active late spring-early summer, adult females active late summer and again in early fall, but note that adults may bite whenever temperatures are above freezing</p>	 <p>Female      Male</p>
<p><b>American dog tick (<i>Dermacentor variabilis</i>)</b>  Transmits Rocky Mountain spotted fever and tularemia  Widely distributed east of the Rocky Mountains and in limited areas of the Pacific Northwest  Bite risk: Adult females most likely to bite humans and are active spring-summer</p>	 <p>Female      Male</p>
<p><b>Lone star tick (<i>Amblyomma americanum</i>)</b>  Transmits ehrlichiosis, tularemia and Southern tick-associated rash illness (STARI)  Widely distributed in the southeastern and south central U.S.  Bite risk: Nymphs and adults are active spring-summer</p>	 <p>Female      Male</p>

Images are not actual size. This information is intended as a general guide only. Please consult the CDC, your state or local Department of Health or Extension Specialist for further information regarding tick identification and risks associated with exposure to ticks and tick-borne diseases. Sources: Catherine Hill, Professor of Entomology/Vector Biology, Purdue University; Centers for Disease Control and Prevention, [http://www.cdc.gov/ticks/geographic\\_distribution.html](http://www.cdc.gov/ticks/geographic_distribution.html)  
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**PURDUE**  
UNIVERSITY

Lyme Disease is commonly transmitted through tick bites.

Ticks usually live in woods or tall grasslands. Ticks infected with bacterium can spread disease when they feed on blood from the host. Ticks cannot fly - they hang onto small bushes or tall grasses and are usually found close to the ground. They wait for an animal or person to pass near them and when the animals or person make contact, the ticks attach themselves to the skin to feed.

In Canada, there are two species of ticks known to transmit Lyme disease:



 <b>JOHN HARRIS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

The western blacklegged tick, which is known to be established in parts of southern British Columbia; and

The blacklegged tick (often called a deer tick), which is known to be established in parts of southern and eastern Ontario, southeastern Manitoba and Nova Scotia.

These ticks vary in size and colour, depending on their age and whether they have been feeding. Before feeding, they are about 3-5 mm in length, and are red and dark brown in colour. Young ticks in the pre-adult stages are smaller and lighter-coloured. When they are full of blood, adult le ticks can be as large as a grape.



### Exposure to Lyme

The risk of contact with ticks begins in early spring when the weather warms up and lasts through to the end of fall. Ticks may also be active in winter in areas with mild temperatures (4°C and above) and no snow.


There is no evidence that Lyme disease can spread from person-to-person. Although cats and dogs can get Lyme disease, there is no evidence that they can pass the infection to people.

### Signs and Symptoms

Tick bites are usually painless and most people do not know they have been exposed to Lyme disease until it has had time to advance.

In the first stage, one of the first signs of infection is a circular rash, often referred to as a "bull's eye" rash because it will have rings spreading from the bite site.



 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

Additional symptoms include:

- Fatigue
- Chills
- Fever
- Headache
- Muscle and joint pain
- Swollen lymph nodes

As the disease progresses, chronic symptoms may develop. Fatalities from Lyme disease are rare.


Lyme disease can be difficult to recognize, and it has been confused with other diseases. It is important for people to consult with their doctor if they feel it is possible that they have Lyme disease.

### Treating Lyme Disease

Lyme disease can be treated effectively with antibiotics. A full recovery is more likely when treatment begins in the early stages of the disease. Undiagnosed Lyme disease which develops into chronic illness can be difficult to treat.

### Protection from Tick Bites

- Wear protective clothing to prevent ticks from attaching to your skin. Wear long sleeveshirts that fit tightly around the wrist, and long- legged pant tucked into your socks or boots.
- Use insect repellents containing DEET to repel ticks. Apply to both clothes and skin. Always read the label and follow instructions for use.
- If possible, avoid contact with low bushes and long grasses.
- Wear light coloured clothing to help you to find the ticks more easily.
- Check for ticks on and under clothing, especially after being in areas where ticks may live.
- A daily skin inspection greatly reduces the risk of infection as ticks may take several hours to two days to attach to the skin and feed. Check areas including armpits, in and around hair, navel, groin, and behind the ears and knees.
- Wash clothes promptly and put them in the dryer with heat to help kill any ticks that may remain.
- Carefully remove ticks found attached to the skin. Gently use fine pointed
- (needle-nose) tweezers to grasp head and mouth parts of the tick as close to the skin as possible. Pull slowly to remove the whole tick. Try not to squash or crush the tick this can help bacteria to get into the body.
- Keep the tick for testing by placing it in a small sealed container or double zip lock bags. Place a moist paper towel or tissue with the tick to help keep it alive. Dead ticks can be tightly sealed in rubbing alcohol. Bring the tick to your doctor.

 <b>JOHN AARTS GROUP</b> <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices</b>		
	PREPARED BY: Health and Safety Team		COR Elements: 2, 3
	APPROVAL DATE: February 10, 2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 34	

## SAFE WORK PRACTICES

- Wash affected area with soap and water or disinfect (with alcohol or household antiseptic) after removing ticks.
- Know how to identify ticks and know the signs and symptoms of Lyme disease.
- Contact a doctor immediately if you have an illness that resembles Lyme disease.

### Sharps and Biological Hazards

Work in public spaces will occasionally involve hazards from needles/other sharp objects. These may expose a worker to biological hazards.

JAG has developed the following to help control these hazards:

#### Why should sharps be handled safely?

- Sharps can contain blood from other people and this blood can carry blood-borne infections like hepatitis B, hepatitis C, and HIV.
- HIV can live on a needle for up to several hours. Hepatitis B and C can live on a needle for weeks.
- Accidental puncture wounds from a sharp can allow the entry of infection through the skin, resulting in blood-borne infections such as hepatitis B, hepatitis C and HIV.



#### How should I handle and dispose of found needles or other sharps?

Use caution. Treat all found needles and other sharps as contaminated. Do **not** try to put the cap back on a needle.

- Do not touch the sharp with your bare hands.
- Use needle tongs available through your supervisor.
- Disposable gloves must be worn when working with sharps.
- Always hold sharp or cutting edges down and away from you.
- Put the container on a stable surface next to the sharp. Do not hold the container in your hand when placing the sharp inside. If picking up a needle, put the needle in the container point down. Do not force sharps into the container or overfill it.
- Close the container securely.
- Ensure that the contaminated end of the needle tongs are put back into the storage bag and the bag is properly secured.
- Remove gloves by taking them off inside out to ensure your hands are not contaminated.
- Wash hands with soap and water and/or an alcohol-based hand rub after all handling sharps, containers, used equipment, and after removing gloves.





 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 1: Health and Safety Policies</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 2	

## HEALTH AND SAFETY POLICIES PROCEDURE

### PURPOSE

The purpose of the health and safety policy statements is to communicate the spirit, philosophy, and requirements of the Occupational Health and Safety Management System.

### SCOPE

J-AAR's company policies apply to every employee in the company and our subcontractors.

### RESPONSIBILITIES

#### Senior Management:

- Review, sign, and date the Health and Safety policy annually
- Provide required resources for the implementation of the policy
- Ensure the prescribed equipment, materials, and protective devices are provided, in good condition, and used correctly
- Ensure the policy meets or exceeds the Act and all relevant Regulations
- Ensure the policy statement adequately reflects J-AAR's commitment to Occupational Health and Safety
- Ensure the implementation at all J-AAR places of business
- Ensure competent supervision is assigned
- Ensure the all required equipment, materials, and protective devices are provided, in good condition, and used correctly as per the Act and Regulations at all J-AAR places of business
- Provide assistance and resources to site supervision as required

#### Supervisors:


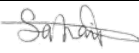
- Ensure the Health and Safety Policy Statement and all required postings are in a conspicuous location on their sites
- Ensure workers use the prescribed equipment, materials, and protective devices correctly as per the Act, Regulations, and J-AAR Policies and Procedures
- Advise all workers under their supervision of any actual or potential danger to their health and safety
- Take every precaution reasonable to protect a worker
- Provide workers adequate and clear instructions when necessary as per the Act, Regulations, and J-AAR's policies and procedures

#### Workers:

- Work in compliance with the Act, all applicable Regulations, and the J-AAR Health and Safety Policy
- Work in accordance with instruction tools and protective devices provided
- Report any health and safety violations or deficiencies to their supervisor

#### Health and Safety Team:

- Develop the Health and Safety Policy in conjunction with senior management, supervisors, and workers
- Assist with the implementation of the Health and Safety policy

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 1: Health and Safety Policies</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 2	

## HEALTH AND SAFETY POLICIES PROCEDURE

- Develop and maintain a HIRA in cooperation with employees and managers
- Ensure each new worker reviews the health and safety policy at the time of their orientation
- Act as a resource to site teams/senior management for continual improvement

### Health and Safety Committee/Rep:

- Review policies and procedures as required
- Provide recommendation for improvements

## REQUIREMENTS

### Documentation:

- The Occupational Health and Safety Act, RSO 1990
- O.Reg 213/91: Construction Projects
- O.Reg 632/05: Confined Spaces
- O.Reg 211/01: Propane Storage and Handling
- RRO 1990, Reg. 1101: First Aid Requirements
- O.Reg 420/21: Notices and Reports Under Sections 51 to 53.1 of the Act – Fatalities, Critical Injuries, Occupational Illness, and Other Incidents
- O.Reg 381/15: Noise
- O.Reg 490/09: Designated Substances
- O.Reg 278/05: : Asbestos in Construction
- RRO 1990, Reg. 860: WHMIS
- RRO 1990, Reg. 851 Industrial Establishments

## DOCUMENT AND RECORDS CONTROL

J-AAR's policies will be reviewed by all new hires as part of their on-boarding process. They will always be available to employees online. The Health and Safety and Violence and Harassment policy statements will be posted at all J-AAR places of business.

Senior Management will review and update the policy statements at least annually. The J-AAR Health and Safety Team will circulate new documents as required.


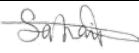
Records of communicating J-AAR's HSE Policies will be saved on the HCSS Safety servers or on J-AAR's own.

## ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

## REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 1.2: Document and Record Control</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## DOCUMENT AND RECORDS CONTROL PROCEDURE

### PURPOSE

The Purpose of J-AAR's document and record control policy and procedure is to identify the necessary and sufficient documentation to maximize the efficacy of our Occupational Health and Safety Management System. This policy will also cover the requirements for approval, review, maintenance, changing, and retention of the required documents and records.

### SCOPE

This procedure applies to all documents and records created, circulated, used, and archived by employees of J-AAR for health and safety.

### DEFINITIONS

#### Document:

- Documents are pieces which contain – or have the potential to contain – Information and can be edited. An example of a document is a blank equipment inspection.

#### Record:

- Records are completed documents. They can no longer be changed. An example of this is a completed equipment inspection.

### PROCEDURE

#### Identify the Necessary Documentation:

- Senior Management, with assistance from the Health and Safety team, will identify the necessary documents required for the J-AAR OHSMS
- The Health and Safety team will review relevant legislation, in-house policies/procedures, external documents and records such as MLTSD field visit report/order; WSIB/RTW forms; industry best practices, etc.

#### Document Approval:

- Senior Management – working with the relevant workplace parties (such as the JHSC/workplace Rep) – will review and approve the necessary documents as required.


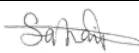
#### Document Review, Update, Re-Approve, or Withdrawal:

- As required – annually at a minimum – Senior Management in conjunction with the Health and Safety team will review all documents and provide updates, re-approval, or withdrawal of use as the result of review.

#### Document Issued/Recirculated:

- After the document has been approved by Senior management the Health and Safety team will issue and circulate the most recent version to J-AAR jobsites and facilities. This will predominantly be done through HCSS.



 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 1.2: Document and Record Control</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## DOCUMENT AND RECORDS CONTROL PROCEDURE

- The approval date and revision number will be found on all internally created documents. This will ensure that the most up to date documents will be issued.
- The Health and Safety team will notify all relevant workplace parties when there is a new/revised/withdrawn document and provide them with the appropriate new documentation.


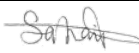
### Document and Record Storage:

- The security and confidentiality of all company documents and records must be taken into account
  - Any employee found to breach the J-AAR privacy and confidentiality agreement will be subject to J-AAR's progressive discipline policy
- Documents and records must be stored in a way that keeps them legible and readily identifiable
- Documents and records will be stored electronically indefinitely on J-AAR's and HCSS' servers
- Physical documents from projects will be stored at the J-AAR office for one year after completion of the project

### REQUIRED DOCUMENTS AND RECORDS

- All of J-AAR's Health and Safety Policies, Programs, and Procedures
- Corporate Hazard Identification and Risk Assessment Matrix
- Job Hazard Analysis form
- Site Specific Safety plan
- Environmental Management Plan
- Subcontractors Qualification and Evaluation records
- Company rules
- Progressive discipline records
- Equipment and tool inventory
- Maintenance schedules and records
- JHSC meeting and minutes
- Manufacturer's manuals
- Training requirements matrix
- Incident investigation reports
- Emergency response plans/procedure
- Emergency drill records
- Site statistics
- Traffic control plans
- Confined space entry permits
- External communication (MLTSD, WSIB, FAF, etc)
- Company annual reports
- Safe Job procedures



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 1.2: Document and Record Control</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## DOCUMENT AND RECORDS CONTROL PROCEDURE

- Safe Work Practices
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90



## HAZARD ASSESSMENT POLICY

Senior management are unwavering in our commitment to reduce risk of work-related injury, illness and property damage at our site's facilities, offices, and operations. Our commitment includes reducing the risk of psychological hazards such as exposure to violence, harassment, traumatic events and unreasonable workloads or expectations.

We acknowledge our responsibility to ensure the requirements of the Occupational Health and Safety Act, applicable regulations, guidelines, and industry standards, are incorporated into our program, assessments, controls, and mitigation measures. As we strive for the best degree of protection possible for our people every effort will be made to exceed minimum standards.

Effective work planning is vital to the health and safety of all employees, subcontractors, and visitors. We will make every effort to identify hazards and implement controls reducing risk to the lowest possible level prior to work starting.

All required resources to ensure a hazard assessment procedure is developed and effectively implemented will be provided by J-AAR Excavating.

Hazard identification, assessment and control procedures will incorporate the hierarchy of controls ensuring the highest degree of protection and lowest risk possible to our people, processes and equipment is achieved for identified hazards.

A corporate Hazard Identification and Risk Assessment (HIRA) will be conducted and documented for known hazards taking into account all aspects of company activities including but not limited to offices, facilities construction sites, on road driving and laydown yards, and storage areas.

The HIRA will be used as a planning tool and starting point for daily risk assessments in compliance with the hazard assessment procedure.

It is our strict policy that work deemed to have critical hazards will not be conducted without planning, training, documented procedures, and rescue plan where required.

Employees carrying out particular tasks are often the most knowledgeable about hazards, conditions, circumstances, and best mitigation measures. For this reason, managers, supervisors, workers, contractors, and anyone affected by the work being planned is encouraged to take an active role in the hazard assessment and control process.

Hazard assessments will be conducted and reviewed at intervals set out in the hazard assessment procedure and led by competent individuals having the knowledge, training and experience required. Training will be provided as required.

Site and project management are responsible to ensure this policy and corresponding procedure are reviewed, communicated, and implemented, including providing necessary resources.

The health and safety team will be responsible to assist in the development of procedures to identify, assess and control hazards, provide/arrange training, develop forms and act as a subject matter expert and resource to employees.

In alignment with our company spirit of cooperation and internal responsibility, the JHSC or Safety Representative will be encouraged to participate in hazard identification, risk evaluation and control as well as review of policies and procedures. They are invited and encouraged to make recommendation for change at any time.

Following this policy and accompanying procedure, reporting hazards, identifying risks, and suggesting controls and mitigation measures is everyone's responsibility and you are fully expected to participate in the process.

Additional information on roles, responsibilities, processes and training requirements for hazard identification, risk assessment and control can be found in the Hazard Assessment Procedure.

Non-compliance with this policy will result in disciplinary action up to and including termination.


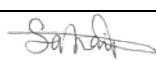
This policy will be reviewed as required and at least annually.

A handwritten signature in black ink, appearing to read 'Sandra', is written over a horizontal line.

Signature

February 24, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

### PURPOSE

The purpose of this procedure is to eliminate or reduce risk of injury, illness, equipment damage and environmental impact. It provides a framework for regular and consistent identification of hazards, assessment of risk, and implementation of mitigation measures for all offices, operations, sites, and tasks.

### DEFINITIONS

**Assessment:**

A process used to identify hazards, assess risk, and identify controls for tasks, processes, work methods, etc. that may cause harm to worker, environment, or equipment.

**Competency:**

A person who, is qualified because of knowledge, training, and experience to organize work and its performance, is familiar with the act and regulations that apply to the work and has knowledge of any actual or potential dangers in the workplace.

**Consequence:**

The effect of the hazard, risk, and control (assigned a numerical value from 1 to 5).

**Control:**

Procedures, methods, tools, machines, or training adopted to minimize risks, injury, adverse health effects and damage to equipment or the environment.

**Critical Task:**

A task that has been identified as high risk, based on the risk assessment.

**Daily Safety Meeting:**

An active discussion between supervisors, employees, and visitors where job safety information including scope of work, hazards, JHA and other safety information is communicated.

**Environmental Management Plan (EMP)**


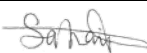
A formal documented plan including species at risk, waterways, archeological sites, environmentally significant features and other substantial environmental risks and controls to ensure the minimizing our construction footprint.

**Hazard:**

A source of potential damage, harm, or adverse health effects on something or someone.

**Human Factors:**

Human factors are how humans behave physically and psychologically in relation to particular environments, products, or services.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

### **Job Hazard Analysis (JHA):**

A documented hazard, risk, and control assessment completed at the time and place of specific task or job.

### **Likelihood:**

The chance of an incident happening. (assigned a numerical value from 1 to 5).

### **Residual Risk:**

The remaining exposure after all efforts to identify, eliminate and control hazards are implemented to reduce risk to the lowest practical level.

### **Risk:**

The numerical values of likelihood multiplied by the consequence using the risk matrix.

### **Workplace/Site Specific Safety Plan**

A formal safety plan specific to a workplace or construction site.

## SCOPE

This procedure provides information and instruction regarding methods to identify hazards, assess risk, and implement the hierarchy of controls to ensure risk to employees, the environment, equipment, and property is eliminated or reduced to the lowest possible level.

### **Competent Persons**

Hazard Assessments must be carried out by a competent person meeting the following requirements:



- Training in the organization of the work and its performance including hazard assessment, analysis, control and specific hazard assessment documents and safe work procedures contained in the OHSMS
- Knowledge, training, and experience in the work methods, organization of the work and its performance.
- Familiar with the regulatory requirements, codes of practice and industry standards that apply to the work
- Knowledge of actual and potential hazards and danger to health and safety in the workplace

### **Areas Requiring Assessment**

The process of hazard identification, assessment and control will be undertaken at all facilities, sites, and offices at the corporate, project, operation, and task levels. Assessments will consider all classes of hazards including biological, chemical, environmental, safety, psychosocial, physical and human factor (ergonomic) hazards.

Hazard assessments will be carried and documented in three main areas follows:

- Corporate Hazard Identification and Risk Assessment (HIRA)
- Pre-Construction & Site-Specific Safety Plan (construction)
- Workplace Specific Assessment (industrial)
- Daily risk assessments (JHA) (construction projects only)

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

### Corporate Hazard Identification and Risk Assessment (HIRA):

Is a risk assessment carried out for known hazards in all company operations, facilities, departments, processes, and sites, offices, laydown yards, driving, etc. and will:

- Include an overall risk assessment of all operations
- Include both Pre and Post control risk assessment
- Identify and document legislative requirements, guidelines, standards safe work practices and procedures
- Be revised as required when new processes, equipment, or legislative changes are introduced
- Identify high risk tasks (Critical Tasks) requiring safe job practices or procedures

### Pre-Construction Hazard Assessments:

Will be carried out on project lasting more than 90 days. Known hazards based on the scope of work will be identified, assessed for risk and mitigation measures planned, developed, documented, and approved prior to mobilization to site. The HIRA will be a starting point when conducting a Pre-Construction Hazard assessment.

Pre-Construction Hazard Assessment will:

- Include review of legislative responsibilities, safe work policies, practices and procedures as required
- Be carried out and documented by or under the direction a competent person or supervisor
- Be undertaken to identify hazards reasonably anticipated based on customer requirements, scope of work, site conditions, and geographic information (refer to the Pre-Construction Hazard Assessment Procedure)

### Site Specific Safety Plans (SSSP)

Pre-Construction Hazard assessments will be used to develop a site-specific safety plan.

In addition the SSSP will:


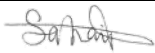
- Include review of legislative responsibilities, safe work policies, practices and procedures as required
- Be carried out and documented by or under the direction a competent person or supervisor.
- Be completed prior to mobilizing on site
- Will be undertaken based on information documented on the Pre-Construction Hazard Assessment
- Include identification of hazards and mitigation procedures, emergency procedures, etc.
- Include assignment of responsibilities and contact information

**Note:** Projects expected to last less than 90 days will not be subject to the SSSP process.

### Job Hazard Analysis (JHA):

JHA(s) will be carried out regardless of the size or length of a project to ensure task-specific hazards are identified, assessed and mitigation measures applied as required.

Consideration will be given to weather, terrain, other contractors work and processes, training etc.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

JHA(s) will be documented on the designated form and communicated to workers in a meeting prior to task assignment and work starting. All in attendance including workers, supervisors, contractors, or visitors affected by the work will be encouraged to take an active role in the assessment process and discussion.

Where the scope of work changes (weather, schedule, personnel, or task etc.). The risk assessment will be revisited and revised as required and will:

- Be carried out daily to identify hazards, assess risk and mitigation measures
- Include the scope of work, tasks and hazards presented by subcontractors
- Include review of legislative responsibilities, safe work policies, practices and procedures as required
- Be carried out and documented by or under the direction a competent person or supervisors.
- Be communicated to employees, visitors, and subcontractors in vicinity of the task
- Be kept in a database of common JHAs for reference where applicable (Refer to JHA Procedure)

### Worker and third-party involvement

- Risk assessments at the corporate project levels will be carried out by the Health and Safety department and where required third party professionals such as engineers, maintenance personnel, manufacturers, and suppliers. Where possible workers will be involved in the assessment process through the JHSC, safety rep or directly reviewing the assessment and providing feedback.
- Daily risk assessments are mandatory for all workers.
- Assessments will be discussed with all workers in a meeting that includes two-way communication and direct feedback about the risks involved in the daily work plan and controls to mitigate those risks. Understanding of the requirements will be verified by supervision before work is carried out.
- All workers are encouraged and expected to actively participate in safety meetings and hazard review

### Hazard Reporting Requirements


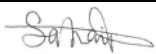
Reporting hazards is a legal requirement under the OHSA and a condition of employment.

All actual and potential hazards must:

- Be immediately reported to supervisor or manager
- Be reported during the assessment process if possible and when a worker becomes aware of the hazard after the assessment has been completed.
- Include hazardous acts (horseplay, carelessness, not using proper PPE etc.) that could lead to an incident, harm people, equipment or property
- Include broken, damaged or improper tools, machines and equipment
- Include site conditions and hazards introduced by other contractors and subcontractors

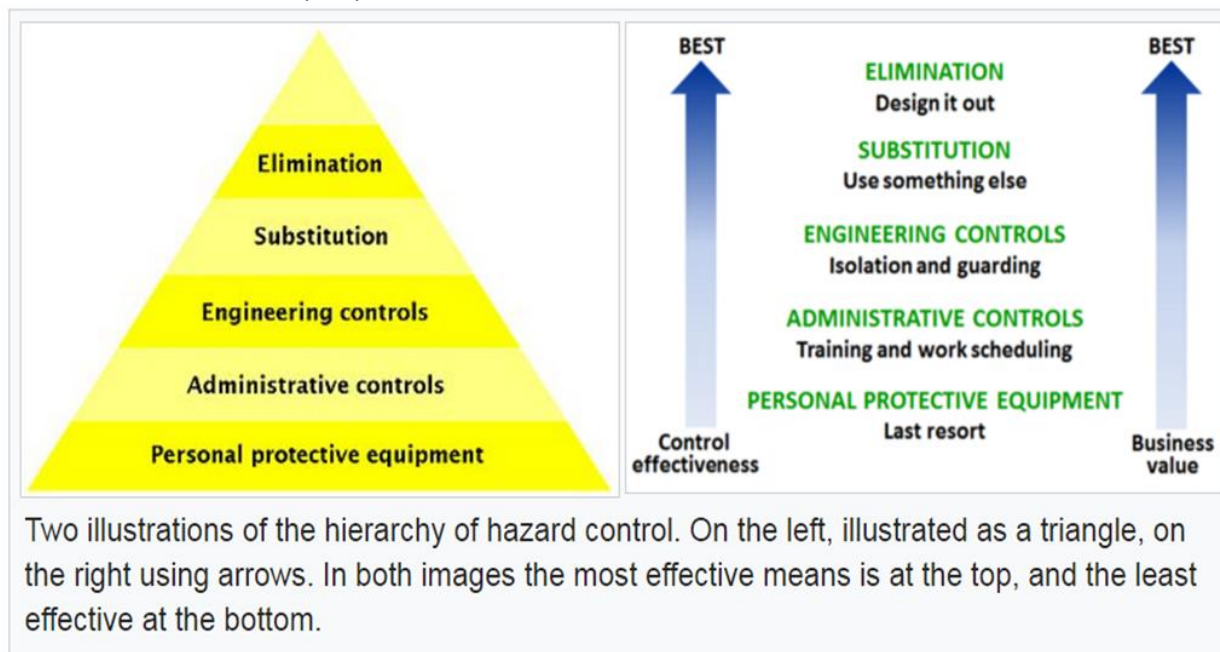
### Controlling Risk

When considering controlling the risk associated with a job or task the hierarchy of controls must be used to ensure that the highest form of control and best protection possible is considered and implemented.


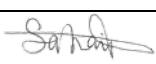
 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

1. Elimination - The most effective measure. Choose a different process or modify an existing process.
2. Substitution - Substituting for a less harmful substance or process.
3. Engineering Controls - Contains hazards by using a barrier between workers and the hazard (sound enclosures, machine guards, paint booths, ventilation, fencing, proximity guarding, extraction systems, hot sticks, etc.)
4. Administrative Controls - Revise work procedures. Administrative controls address how the work is structured, such as work procedure, pace, and breaks. Consideration might be given to modifying steps which are hazardous, changing the sequence of steps, adding additional steps, training, rotation of workers to reduce exposure, removing a worker to a remote location away from the hazard, lock out, work protection procedures, etc.
5. PPE - Should only be used if other controls are not possible to implement. Although they can be effective, they are the least effective way to protect workers from hazards.






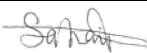
 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 2, 3
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

Using the Risk Assessment Matrix:

RISK MATRIX: HIGH (DO NOT CARRY OUT) - CRITICAL - MEDIUM - LOW							
Consequence x Likelihood = Risk Rating			LIKELIHOOD				
			5	4	3	2	1
			Certain	Likely	Possible	Unlikely	Almost Impossible
CONSEQUENCE	Critical/Fatality	5	25	20	15	10	5
	Serious	4	20	16	12	8	4
	MA+LTI/MOD	3	15	12	9	6	3
	MA	2	10	8	6	4	2
	First-Aid	1	5	4	3	2	1
<p><b>Low/Acceptable risk</b> – The total numerical value is calculated to be between 1 and 5, the controls are considered adequate to mitigate the risk and no other action is required.</p>							
<p><b>Medium Risk</b> – The total numerical value is calculated to be between 6 and 9. Consideration should be given to additional measures reducing risk. Work can proceed, however controls must be maintained to ensure that the risk does not increase.</p>							
<p><b>Critical Tasks</b> -- Any risk assessment with a determined numerical value between 10 and 15 is considered to be a critical task. Safe work practices or procedures will be documented for all critical tasks.</p>							
<p><b>High Risk</b> - The total numerical value is calculated to be between 15 and 25, the risk is unacceptable. Work must not proceed until risk is reduced to a lower level. Controls including training, tools, equipment, safe work practices and procedures are required to reduce risk. Tasks that have a high-risk rating are <b>not</b> to be carried out without approval from J-AAR management.</p>							



 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

Hazard assessments will be carried out and documented using the corporate risk matrix above.

1. A job or task is assigned a numerical value consistent with the possible consequence of an occurrence
2. A job or task is assigned a numerical value consistent with the likelihood or occurrence
3. The consequence value is multiplied by the likelihood value to determine the overall task risk rating

Tasks which have a residual risk of 10-15 are considered critical tasks by J-AAR. These tasks are not to be undertaken until an additional hazard assessment has been completed and the safe work procedure reviewed by all workplace parties involved.

### PROCEDURE

#### Identify The Job, Process Or Job Steps

- Identify the Job Process or task to be evaluated
- Where necessary break the task into smaller steps or segments that allow the process to move forward
- Document the Job, Process, or steps on the appropriate form (HIRA, Project Hazard Assessment or JHA)


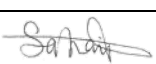
#### Identifying Hazards

1. For site specific safety plans and daily risk assessments review the job, procedure or task breaking it down into main steps (task that will move the process forward) and document them on the appropriate form
2. For the HIRA steps may not be broken out, hazards will be listed under the task or job.
3. Identify all potential and actual hazards associated with the task and the working environment, including but not limited to:
  - Physical – heat, noise, vibration, and poor lighting
  - Safety – kinetic energy (struck by), trip hazards, stored energy, gravity, electrical
  - Chemical – exposure to dust, mists, vapors liquid chemicals and smoke
  - Biological – bacteria, allergens, blood borne pathogens, vector borne diseases and viruses
  - Ergonomic – repetitive motion, excessive repetition, vibration, posture, lighting, and workspace design
  - Psychosocial – workplace violence, stress, pace of work, schedules and working alone
  - Environmental – Species at Risk, significant water features, spills to the air, land or water, refueling, archeological sites, etc.

#### Identifying, Assigning and Recording Controls

The hierarchy of controls must be implemented when considering the most effective controls for identified hazards. Controls can be implemented in three basic areas:

1. At the Source of the Hazard (Elimination or Substitution): this is the best method of control as the hazard is eliminated completely.
2. Along the Path between the Workers and Hazard (Engineering Controls): this is the second-best choice of control because there is a barrier that prevents worker exposure to the hazard.
3. At the Worker (Administrative Controls, PPE): this is the least effective control. Although the worker is protected the control does not eliminate or reduce the hazard, requires proper fit (glasses and respirator), and can introduce psychological stressors.

 <p><b>JAAR EXCAVATING</b></p> <p>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</p>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

### Identifying Control Measures

Identify controls that will reduce either or both the likelihood occurrence or possible consequence to people, property or equipment should an incident happen.

- Identify all actions necessary to eliminate or control the risk through engineering controls, work practices, hygiene practices, facilities, and PPE (Consider both actual and potential exposure of workers)
- Consider all methods of work and procedures used in processing, use, handling or storage of substances, materials, equipment, etc.
- Consider safe work practice, procedures, training, experience, competency, tools, and equipment
- Ensure the risk level has been reduced to the lowest possible numerical value

### Documenting Control Measures

- Preventive measures must mitigate and or reduce the risk to an acceptable level
- Assign controls to all identified hazards
- Do not use general statements such as "be careful" or "use caution". Use specific statements describing what action is to be taken and how it is to be performed
- Document preventive measures and controls on the appropriate form (HIRA, Project Hazard Assessment, Workplace Specific or JHA)

### Assessing Risk


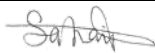
Assessing the risk requires a competent person having knowledge of the regulations, codes of practice and industry standards that apply to the work, training to perform the assessment in compliance with HSMS, legislative requirements and experience in the work being assessed.

For all types of risk assessments remember to:

- Account for worker training, knowledge, and experience (competency).
- Document on the appropriate form or template
- Consider all potential and actual hazards in normal operational situations as well as non-standard events such as shutdowns, power outages, emergencies, etc.
- Review available health and safety information about the hazard such as SDS(s), manufacturer's literature, information from other organizations, testing results etc.
- Consider who may be exposed, how they may be exposed, how much they will be exposed to and when they will be exposed
- Consider the work area lay out, ergonomics, equipment, machinery, processes, and other contractors

### Assigning Numerical Values to Determine Risk

1. The likelihood of an incident occurring ranges from almost Impossible to certain and will be assigned a numerical value from 1-5 on the risk matrix chart
2. The consequence of an incident ranges from Minor Injury/First Aid to Critical Injury or Death and will be assigned a numerical value from 1-5 on the risk matrix chart

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

3. Risk will be determined by multiplying the numerical value assigned to likelihood by the numerical value assigned to Consequence. (Likelihood X Consequence = Risk).

### Determining Risk and Residual Risk:

- Identify a job, operation or task and list it on the on the appropriate form.
- List the known and potential hazards associated with the job, operation, or task
- Note: Give no regard to the possible controls when assigning pre-control values on the HIRA
- Assign a numerical value to the likelihood of an incident happening
- Assign a numerical value to the consequence of an incident occurring
- Use the risk matrix, to multiply the numerical value assigned to likelihood with the numerical value assigned to consequence
- The remaining value represents residual the risk or risk remaining after controls are applied.
- Document the total value in the corresponding column

The risk rating numerical value will correspond with a colour on the risk matrix indicating:

Green = Low Risk

Yellow = Medium Risk

Orange = Critical Task

Red = High Risk

The risk rating and numerical values:

Low/Acceptable risk – The total numerical value is calculated to be between 1 and 5, the controls are considered adequate to mitigate the risk and no other action is required.

Medium Risk – The total numerical value is calculated to be between 6 and 9. Consideration should be given to additional measures reducing risk. Work can proceed, however controls must be maintained to ensure that the risk does not increase.


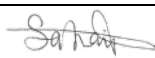
High Risk - The total numerical value is calculated to be between 15 and 25, the risk is unacceptable. Work must not proceed until risk is reduced to a lower level. Controls including training, tools, equipment, safe work practices and procedures are required to reduce risk. Tasks that have a high-risk rating are not to be carried out without approval from J-AAR management.

Critical Tasks -- Any risk assessment with a determined numerical value between 10 and 15 is considered to be a critical task. Safe work practices or procedures will be documented for all critical tasks.

## RESPONSIBILITIES

### Senior Management

- Ensure hazard assessments are completed at projects under their responsibility
- Ensure competent supervision are assigned
- Provide assistance and resources to site supervision as required
- Ensure control measures fit the task and are implemented in a timely manner

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

- Communicate the requirements of the EMP & Site-Specific Safety Plan to supervisors prior to the start of the project and as needed as the project progresses
- Implement the requirements of the EMP & Site-Specific Safety Plan

### Supervisors

- Ensure hazard assessments are completed accurately including potential hazards and effective control methods to mitigate or eliminate risk
- Ensure hazard assessments are documented using the appropriate forms
- Communicate the details of hazard assessments to employees and others
- Ensure employees are trained and competent to complete the task being assigned
- Ensure workers are trained in the selection, care and use of protective devices
- Encourage participation by employees, subcontractors and visitors
- Sign off on hazard assessment daily

### Workers

- Work in accordance with instruction tools and protective devices provided
- Report any changing conditions or hazards that arise during task completion
- Ask for clarification if unclear about information provided or task assigned
- Fully and actively participate in the hazard assessment process and discussion
- Sign off on hazard assessment daily

### Health and Safety Team

- Develop policies and procedures to identify, assess and control hazards
- Provide or arrange hazard assessment training for supervisors and employees
- Maintain a Corporate HIRA in cooperation with employees and managers
- Assist with development of EMP(s), Pre-Construction Hazard Assessment or SSSP
- Act as a resource to site teams for ongoing hazard assessments and controls
- Attend pre-start meetings and assist teams to create required plans

### Health and Safety Committee/Rep



- Review policies and procedures as required
- Participate in assessments as required
- Provide recommendation for change

### Subcontractors

- Review policies and procedures as required
- Participate in assessments as required
- Report all hazards immediately
- Sign off on hazard assessment daily

### Visitors

- Review policies and procedures as required
- Participate in assessments as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.1: Hazard Analysis, Risk Assessments, and Controls</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 11	

## HAZARD ASSESSMENT PROCEDURE

- Report all hazards immediately
- Sign off on hazard assessment daily

### REQUIREMENTS

#### Documentation:

- Corporate Hazard Identification and Risk Assessment Matrix
- Job Hazard Analysis form
- Site Specific Safety plan
- Safe Job procedures
- Safe Work Practices
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90

#### Training:

- Hazard recognition and control
- Job Hazard Analysis
- Responsibilities as per legislation and the HSMS
- Site specific safety plan
- Selection, care and use of protective devices required

### REVIEW


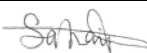
This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### DOCUMENT AND RECORD CONTROL

All documents and records generated as part of this procedure will be stored on HCSS/J-AAR's servers indefinitely. Any hard copies generated will be stored at J-AAR's head office for two years after project completion.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.2: Job Hazard Analysis (JHA)</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## JOB HAZARD ANALYSIS PROCEDURE

### PURPOSE

The purpose of this procedure is to reduce or eliminate incidents by providing information and guidance to ensure consistent and effective Job Hazard Analyses (JHA) are conducted as a part of job planning.

The JSA process will ensure that hazards are identified, and adequate mitigation measures implemented to eliminate or reduce the risk to people, property, equipment, and the environment. In addition, a JHA will help:

- Prompt recognition of hazards and methods of control or mitigation
- Promote acceptance of consistent work procedures
- Reduce workers reliance on memory and increase consistency
- Identify previously undetected hazards
- Increase job knowledge
- Raise health and safety awareness
- Promote improved communication between workers and Supervisors
- Serve as a teaching aid for initial job training and as a briefing guide for infrequent jobs
- Assist in completing observations during site audits or accident investigations

### DEFINITIONS

#### Assessment:

A process used to identify hazards, assess risk, and identify controls for tasks, processes, work methods, etc. that may cause harm to worker, environment, or equipment.

#### Consequence:

The effect of the hazard, risk, and control (assigned a numerical value from 1 to 5).

#### Control:

Procedures, methods, tools, machines, or training adopted to minimize risks, injury, adverse health effects and damage to equipment or the environment.

#### Hazard:

A source of potential damage, harm or adverse health effects on something or someone

#### Job Hazard Analysis:


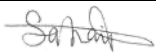
A documented hazard, risk, and control assessment completed at the time and place of specific task or job.

#### Likelihood:

The chance of an incident happening. (assigned a numerical value from 1 to 5)

#### Residual Risk:

The remaining exposure after all efforts to identify, eliminate and control hazards are implemented to reduce risk to the lowest practical level

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.2: Job Hazard Analysis (JHA)</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 2
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 7	

## JOB HAZARD ANALYSIS PROCEDURE

### Risk:

The numerical values of likelihood multiplied by the consequence using the risk matrix

### SCOPE

Most projects require several JHAs. Wherever possible input will be solicited from workers, supervisors, managers, JHSC/worker rep and others who may be affected.

JHAs are living documents that may change as the job scope or project evolves and when new information becomes available. They must be reviewed and revised as required and cover all main steps in a specific task to be effective.

#### Competent Persons

JHA(s) must be carried out by a competent person meeting the following requirements:

- Training in the organization of the work and its performance including hazard assessment, analysis control, specific hazard assessment documents, safe work practices and procedures contained in the OHSMS
- Knowledge, training, and experience in the work methods, organization of the work and its performance.
- Familiar with the regulatory requirements, codes of practice and industry standards that apply to the work
- Knowledge of actual and potential hazards and danger to health and safety in the workplace

It is J-AAR's policy that the JHA is reviewed for each task carried out by a field worker before work commences every day.

### PURPOSE

#### 1. JOB OR TASK SELECTION


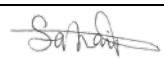
The terms "job" and "task" are used interchangeably to mean a specific work assignment, such as pulling cable, insulator installation, steel erection, setting forms, unloading materials etc.

JHAs are not suitable for jobs defined too broadly, for example, "overhauling an engine"; or too narrowly, for example, "positioning a car jack".

When selecting a job to be analyzed, the following points should be considered:

- Jobs where accidents occur frequently or occur infrequently but result in disabling injuries
- Potential for severe injuries or illnesses
- The consequences of an accident, hazardous condition, or exposure to harmful substance
- Newly established jobs
- Lack of worker experience with jobs or tasks (hazards may not be evident or anticipated)
- Modified jobs (new hazards may be associated with changes in job procedures)
- Infrequently performed jobs (workers may be at greater risk when undertaking non-routine jobs, and a JSA provides a means of reviewing hazards)
- Separate JHA(s) are required when workers perform similar tasks in different locations
- Training and Competency



 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.2: Job Hazard Analysis (JHA)</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## JOB HAZARD ANALYSIS PROCEDURE

### 2. BREAKING THE JOB DOWN

After a job has been chosen for analysis, the next stage is to break down into steps:

- A job step is defined as a segment of the operation necessary to advance the work.
- If steps are too detailed, the JHA will be burdensome and difficult to follow.
- If not detailed enough, hazards may be missed.
- Be as specific as you can.
- Keep the steps in their correct sequence. Any step, which is out of order, may miss serious potential hazards or introduce hazards, which do not exist if documented in the sequentially.
- Each step should be documented in the left-hand column of the JHA form.

### 3. IDENTIFYING POTENTIAL HAZARDS

Think about what could go wrong from a health and safety point of view and how people, equipment, materials, subcontractors, and the surrounding environment could pose a hazard.


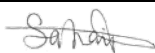
To help identify potential hazards consider questions such as:

- Is there other work going on near the work area?
- Are there Legislative and Regulatory requirements?
- Do manufacturer's equipment instructions apply?
- Is there live apparatus in the area or do Limits of Approach apply?
- Can any body part get caught in or between objects?
- Do tools, machines, or equipment present any hazards?
- Can the worker make harmful contact with moving objects?
- Can the worker slip, trip, or fall?
- Can the worker suffer strain from lifting, pushing, or pulling?
- Is the worker exposed to extreme heat or cold?
- Is excessive noise or vibration a problem?
- Is there a danger from falling objects?
- Is lighting a problem?
- Can weather conditions affect safety?
- Is harmful radiation a possibility?
- Can contact be made with hot, toxic, or caustic substances?
- Are there dusts, fumes, mists, or vapors in the air?
- Is there any stored energy (pneumatic, hydraulic, gravity, electric, etc.)?

List all hazards associated in each step of a job task (both potential and actual hazards must be identified).

Document the hazards on the JHA corresponding with the task or job step. At this stage of the JHA process simply listing the hazards is the goal. No attempt is made to resolve them.



 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.2: Job Hazard Analysis (JHA)</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 2
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 7	

## JOB HAZARD ANALYSIS PROCEDURE

Note: It may be possible for more than one hazard to be associated with any step.

### 4. DETERMINING PREVENTATIVE CONTROL MEASURES:

The final step in gathering information for a JHA is to determine ways to eliminate or control the hazards identified.

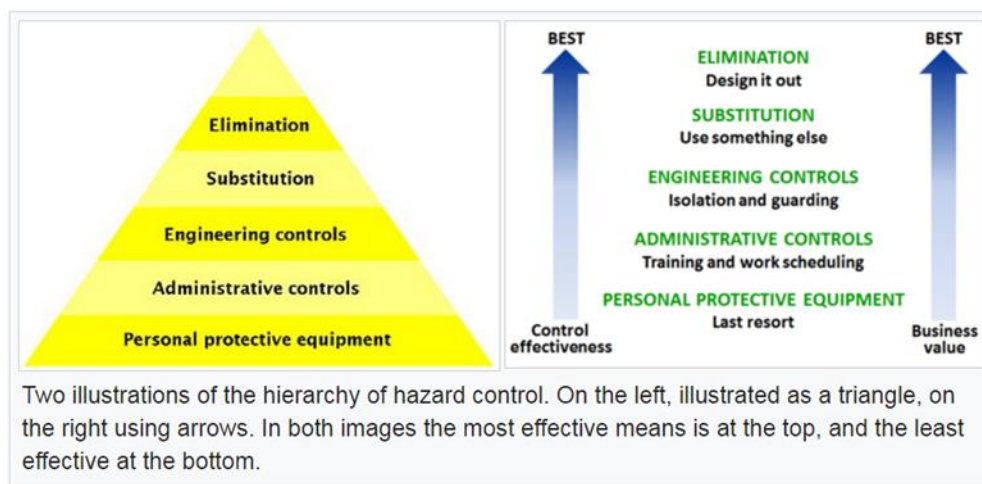
Using the hierarchy of controls will ensure the highest level of protection possible is realized.

When Considering Implementation of Controls:

- Identify all actions necessary to eliminate or control the risk
- Consider processing, use, handling or storage of substance, materials, equipment, etc.
- Consider both the actual and the potential exposure of Worker

Controls can be implemented in three basic areas:


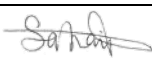
1. At the Source of the Hazard (Elimination or Substitution):
2. Along the Path between the Workers and Hazard
3. At the Worker



**Elimination** -The most effective measure. Choose a different process or modify an existing process.

**Substitution** - Substituting for a less harmful chemical or process

**Engineering Controls** – Contain the hazard. If the hazard cannot be eliminated, exposure might be prevented by using a barrier between Workers and the hazard (sound enclosures, machine guards, paint booths, ventilation, fencing, proximity guarding, extraction systems, hot sticks etc.)

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.2: Job Hazard Analysis (JHA)</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 2
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## JOB HAZARD ANALYSIS PROCEDURE

Administrative Controls – Revise work procedures. Administrative controls address how the work is structured, such as work procedure, pace and breaks. Consideration might be given to modifying steps which are hazardous, changing the sequence of steps, adding additional steps, training, rotation of Workers to reduce exposure, removing a Worker to a remote location away from the hazard lock out, work protection procedures etc.

PPE - Should only be used if no other solutions are possible. They are the least effective way to protect Workers from hazards. If they fail, Workers are still exposed to the hazard.

### Documenting Preventative Control Measures

In listing the preventive measures, do not use general statements such as "be careful" or "use caution". Specific statements, which describe both what action is to be taken and how it is to be performed, are preferable. The preventive measure must mitigate the risk.

Recommended measures are listed in the right-hand column of the JHA in the column titled Controls.

### 5. COMMUNICATION

- Supervisors or delegates must communicate results of the JHA to all workers assigned tasks, working in close proximity or exposed to workplace hazards.
- The daily safety meetings will include two-way communication in regards to content, assignments, and requirements of the JHA(s) including the job or task being carried out, hazards associated with the tasks and control measures to eliminate or reduce risk.
- Safe work practices and procedures must be reviewed as required to ensure worker familiarity.
- Anyone working on the site who may be effected by the work being carried out after the JHA discussion, is required to review the JHA with the supervisor or delegate
- Sign off indicating review and understanding of the JHA is mandatory for all workplace parties involved.


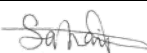
J-AAR's Health and Safety team creates JHA templates for tasks and provides them to field supervisors through the HCSS Safety App. All J-AAR supervisors are provided with an iPad with a data connection by the company at the time of their hire. These templates are created by assessing the corporate HIRA, reviewing company policies and procedures, equipment/devices available to the company, and consulting with supervisors and workers who are actually carrying out the work. These templates are intended to be a starting point for daily JHA's. They can be edited/updated as required through the app to account for changes in condition and unforeseen hazards. Supervisors also have the ability to create a JHA from scratch on the app.

### 6. FOLLOW UP

- Supervisors must follow up in the field to ensure requirements are understood, implemented and effective.
- Any major changes must be reported to head office for evaluation and possible addition to the HIRA

### Reassessment Review and Approval

- JSA(s) must be documented using the appropriate forms and approved by management.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.2: Job Hazard Analysis (JHA)</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## JOB HAZARD ANALYSIS PROCEDURE

- If the scope of work changes, new operations are undertaken, new tools, materials, equipment, or procedures are added or when legislative changes impact our work the JSA must be reviewed and revised as required.
- Changes must be communicated to workers and all parties affected by the work.
- After any major incident, the JSA if applicable will be reviewed to ensure practices, procedures, tools, and equipment are appropriate for the protection of workers and that risks have been evaluated accurately.
- Senior management will review and approve the JSA process as required. Reviews will include new regulatory requirements, tools, equipment, operations, industry practices, standards, and guidelines.

### RESPONSIBILITIES

#### Health and Safety Team:

- Develop and implement a procedure and template for completing JHAs
- Provide assistance, training and resources to the site teams
- Review and update this procedure as required
- Solicit assistance of workers, supervisors, management, subcontractors and suppliers when developing and reviewing JHAs and forms
- Ensure JHA(s) for commonly competed tasks are available on HCSS

#### Senior Management:

- Provide time, resources and materials required.
- Review this procedure as required Review JSAs and ensure procedures are being implemented
- Ensure the JSA process is implemented on projects under their responsibility
- Periodically review JSA(s) and provide feedback to Supervisors
- Make recommendations for change

#### Supervisors:


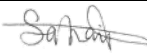
- Ensure JHAs are completed including all potential hazards and control methods
- Communicate JHA to workers and others as required prior to the task beginning
- Revise JHA as required and communicate any changes made to workers
- Ensure workers are adequately trained
- Follow up to ensure requirements are understood, implemented and effective
- Encourage worker participation and input including two-way communications

#### Workers:

- Work in accordance with the instruction provided
- Report any changing conditions or hazards that arise during task completion
- Participate in the assessment and process and provide input at daily safety meetings
- Ask for clarification if unclear about information provided or the task assigned

#### JHSC/Worker Reps:

- Review this policy as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.2: Job Hazard Analysis (JHA)</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 2
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 7	

## JOB HAZARD ANALYSIS PROCEDURE

- Provide input and recommendation for changes

### REQUIREMENTS

#### Documentation:

- JHA Procedure
- JHA form on HCSS
- Corporate Hazard Identification and Risk Analysis (HIRA)
- Applicable safe work practices and procedures

#### Training:

- Hazard Assessment and Control
- JHA procedure
- Rights, duties, and responsibilities of workplace parties
- Job specific training
- OHSMS specific training

### REVIEW


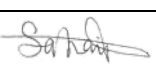
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### ENFORCEMENT

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### DOCUMENT AND RECORD CONTROL

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 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.3: Pre-Construction Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## PRE-CONSTRUCTION HAZARD ASSESSMENT PROCEDURE

### PURPOSE

The purpose of this procedure is to prevent or reduce incidents, injuries, equipment, and environmental damage by providing a framework for Pre-Construction Hazard Assessments completed in the project planning stages. Pre-Construction assessments identify hazardous conditions, processes, equipment and required mitigation measures ensuring the safety of workers, subcontractors and visitors while minimizing construction environmental footprints.

Senior management is committed to the health and safety of all people at our sites and facilities and to practice construction and manufacturing in the most environmentally friendly ways possible. Identification, assessment, and control of hazards that could cause injury or illness to employees, visitors and customers or negatively impact the environment is of paramount importance to all of us. We are dedicated to eliminating and controlling exposures to occupational and environmental hazards as a fundamental method of protecting workers and the environment.

### DEFINITIONS

**Pre-Construction Assessment:**

An assessment to identify and evaluate health, safety, and environmental risk in the planning stages of a project prior to construction

**Hazard:**

Any source of potential damage, harm, or adverse health effects on people, equipment, or the environment as a result of construction activities

**Assessment:**

A systematic review identifying tools, equipment, conditions, processes, etc. that may cause harm, damage, or any negative impact.

**Controls:**


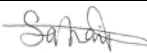
Procedures, tools, machines, training, and processes adopted to eliminate or minimize injury, adverse health effects, damage to equipment or environmental impact.

**HIRA:**

Hazard Identification and Risk Assessment (HIRA) is a corporate risk registry for all operations. It contains known hazards, program/legislative requirements, and controls.

### SCOPE

The Pre-Construction Hazard Assessment procedure applies to all construction projects or industrial operations expected to last longer than three (3) months and will be implemented during the planning stages of a project. Managers, supervisors, and workers affected by the job scope are encouraged to participate in site specific pre-construction hazard assessments.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.3: Pre-Construction Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## PRE-CONSTRUCTION HAZARD ASSESSMENT PROCEDURE

The focus of the Pre-Construction/Job Hazard Assessment is to identify and assess hazards as well as plan controls to eliminate or minimize the frequency and severity of incidents prior to mobilization.

### Considerations will include but not be limited to:

- Known and possible hazards based on the scope of work
- Site conditions, geographic information (urban or rural neighborhood)
- Habitat, species at risk and environmental conditions
- Compliance with applicable regulations
- Customer requirements
- HSMS requirements including internal policies, safe work practices and procedures
- Hazards and controls listed on the HIRA
- Daily risk assessments (JSA) (construction projects only)


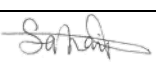
### Examples of hazard classifications:

- Physical – heat, noise, vibration and poor lightning
- Chemical – exposure to dust, mists, vapours and smoke
- Biological – bacteria, allergens and viruses
- Ergonomic – repetitive motion and limitations in workspace design
- Psychosocial – workplace violence, stress and working alone
- Safety – struck by, housekeeping
- Environmental – Significant water ways, species at Risk and Archeological

The Pre-Construction Hazard Assessment will be developed using the Hazard Identification and Risk Assessment (HIRA) registry as a guide. Mitigation and control measures documented on the HIRA are considered adequate means of control for this process.

Where possible a walkthrough of the site or area should occur to aid in the hazard identification process

- 1. Review contract/customer scope of work and related health and safety or environmental requirement documents including:**
  - Formal environmental assessment reports if applicable
  - Customer specific Health, Safety and Environmental requirements
- 2. Identify and assess** foreseeable hazards based on the scope of work and review of documentation, site conditions, geographic information and major work classifications (excavation, steel erection working at heights, traffic control, soil conditions, access, neighbourhood etc.).
- 3. Review:**
  - The HIRA for approved and adequate mitigation measures
  - Documented hazard assessments and information
  - Applicable health and safety legislation and regulatory requirements
  - Applicable environmental legislation and regulatory requirements

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.3: Pre-Construction Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## PRE-CONSTRUCTION HAZARD ASSESSMENT PROCEDURE

- HSE Policies, procedures, safe work practices
  - Customer requirements
- 4. Determine appropriate ways to eliminate or control identified hazards, including:**
- Reducing, isolating or segregating the source of exposure
  - Changing the method, the task is completed
  - Removing the hazard by “engineering it out” of the system through design or modifications
  - Providing equipment, tools, expertise to reduce risk
  - Scheduling or rescheduling when required (weather or multiple contractor hazards)
  - Policies and procedures
  - Orientation
  - Training
  - Personal Protective Equipment controls (PPE):

### Documentation

The Pre –Construction Hazard Assessment information must be documented on the:

- Pre-Construction Hazard Assessment form
- Environmental Management Plan (EMP) when applicable.

### Communications

The information found in this assessment will be communicated:

- During site-specific orientation as required
- At job kick off meetings
- To subcontractors as required

### Review and Approval

This procedure will be reviewed as required or as a minimum on an annual basis.

## PROCEDURE


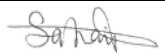
### Identify the Job, Process or Job Steps:

- Identify the Job, Process or task to be evaluated
- Document the Job, Process, or steps on the appropriate form
- Where necessary break the task into smaller steps or segments that allow the process to move forward

### Identifying Hazards:

1. For site specific safety plans and daily risk assessments review the job, procedure or task breaking it down into main steps (task that will move the process forward) and document them on the appropriate form
2. For the HIRA steps may not be broken out, hazard will be listed under the task or job.
3. Identify all potential and actual hazards associated with the task and the working environment, including but not limited to:
  - Physical – heat, noise, vibration, and poor lightning



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.3: Pre-Construction Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## PRE-CONSTRUCTION HAZARD ASSESSMENT PROCEDURE

- Safety – kinetic energy (struck by), trip hazards, stored energy, gravity, electrical
- Chemical – exposure to dust, mists, vapors liquid chemicals and smoke
- Biological – bacteria, allergens, blood borne pathogens, vector borne diseases and viruses
- Ergonomic – repetitive motion, excessive repetition, vibration, posture, lighting, and workspace design
- Psychosocial – workplace violence, stress, pace of work, schedules and working alone
- Environmental – Species at Risk, significant water features, spills, archaeological sites, etc.

### Identifying, Assigning, and Recording Controls:

The hierarchy of controls must be implemented when considering the most effective controls for identified hazards. Controls can be implemented in three basic areas:

1. At the Source of the Hazard (Elimination or Substitution): this is the best method of control as the hazard is eliminated completely.
2. Along the Path between the Workers and Hazard (Engineering Controls): this is the second-best choice of control because there is a barrier that prevents worker exposure to the hazard.
3. At the Worker (Administrative Controls, PPE): this is the least effective control because it does nothing to eliminate or reduce the hazard, requires proper fit (glasses and respirator), and can introduce psychological stressors.

### Identifying Control Measures:

- Identify controls that will reduce either or both the likelihood occurrence or possible consequence to people, property or equipment should an incident happen.
- Identify all actions necessary to eliminate or control the risk through engineering controls, work practices, hygiene practices, facilities, and PPE (Consider both actual and potential exposure of workers)
- Consider all methods of work and procedures used in processing, use, handling or storage of the substance, materials, equipment, etc.
- Consider safe work practice, procedures, training, experience, competency, tools, and equipment.
- Ensure the risk level has been reduced to the lowest possible numerical value.

### Documenting Control Measures:


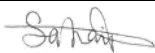
- Preventive measures must mitigate and or reduce the risk to an acceptable level
- Assign controls to all identified hazards
- List recommended preventive measures on the appropriate form in the column titled Controls.
- Do not use general statements such as "be careful" or "use caution".
- Use specific statements describing action to be taken and how it is to be performed
- Document controls on the appropriate form (HIRA, Project Hazard Assessment, Workplace Specific or JSA)

### Assessing Risk:

Assessing the risk requires a competent person having knowledge of the regulations, codes of practice and industry standards that apply to the work, training to perform the assessment in compliance with HSMS and legislative requirements and experience in the work being assessed.

**For all types of risk assessments remember to:**



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.3: Pre-Construction Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 1
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 7	

## PRE-CONSTRUCTION HAZARD ASSESSMENT PROCEDURE

- Account for worker training, knowledge, and experience (competency).
- Document on the appropriate form or template
- Consider all potential and actual hazards in normal operational situations as well as non-standard events such as shutdowns, power outages, emergencies, etc.
- Review all available health and safety information about the hazard such as SDSs, manufacturer's literature, and information from reputable organizations, results of testing, etc.
- Consider who may be exposed, how they may be exposed, how much they will be exposed to and when they will be exposed
- Consider the work area lay out, ergonomics, equipment, machinery, processes, and other contractors.

### Assigning Numerical Values to Determine Risk:

The likelihood of an incident occurring ranges from almost Impossible to certain and will be assigned a numerical value from 1-5 on the risk matrix chart

The consequence of an incident ranges from Minor Injury/First Aid to Critical Injury or Death and will be assigned a numerical value from 1-5. on the risk matrix chart

Risk will be determined by multiplying the numerical value assigned to likelihood by the numerical value assigned to Consequence. (Likelihood X Consequence = Risk). Using the risk matrix.

### Determining Risk and Residual Risk:

- Identify a job, operation or task and list it on the on the appropriate form.
- List the known and potential hazards associated with the job, operation, or task
- Note: Give no regard to the possible controls when assigning pre-control values on the HIRA
- Assign a numerical value to the likelihood of an incident happening
- Assign a numerical value to the consequence of an incident occurring
- Use the risk matrix, to multiply the numerical value assigned to likelihood with the numerical value assigned to consequence
- The remaining value represents residual the risk or risk remaining after controls are applied.
- Document the total value in the corresponding column

The risk rating numerical value will correspond with a colour on the risk matrix indicating:

Green = Low Risk

Yellow = Medium Risk


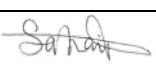
Orange = Critical Task

Red = High Risk

The risk rating and numerical values:

**Low/Acceptable risk** – The total numerical value is calculated to be between 1 and 5, the controls are considered adequate to mitigate the risk and no other action is required.

**Medium Risk** – The total numerical value is calculated to be between 6 and 9. Consideration should be given to additional measures reducing risk. Work can proceed, however controls must be maintained to ensure that the risk does not increase.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.3: Pre-Construction Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 1
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 7	

## PRE-CONSTRUCTION HAZARD ASSESSMENT PROCEDURE

**High Risk** - The total numerical value is calculated to be between 15 and 25, the risk is unacceptable. Work must not proceed until risk is reduced to a lower level. Controls including training, tools, equipment, safe work practices and procedures are required to reduce risk. Tasks that have a high-risk rating are **not** to be carried out without approval from J-AAR management.

**Critical Tasks** -- Any risk assessment with a determined numerical value between 10 and 15 is considered to be a critical task. Safe work practices or procedures will be documented for all critical tasks.

### RESPONSIBILITIES

#### Senior Management:

- Review hazard assessment policies, procedures, practices, and Corporate HIRA
- Provide required resources for the development of ongoing hazard assessments

#### Supervisors:


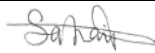
- Ensure required hazard assessments are completed
- Ensure competent supervision are assigned
- Provide assistance and resources to site supervision as required
- Ensure control measures fit the task and are implemented in a timely manner
- Communicate the requirements of the EMP & Site-Specific Safety Plan to supervisors prior to the start of the project and as needed as the project progresses
- Implement the requirements of the EMP & Site-Specific Safety Plan
- Ensure hazard assessments are completed accurately including potential hazards and effective control methods to mitigate or eliminate risk
- Ensure hazard assessments are documented using the appropriate forms
- Communicate the details of hazard assessments and controls to employees and others
- Ensure employees are trained and competent to complete the task being assigned
- Ensure training in the selection, care and use of protective devices required

#### Workers:

- Participate in the pre-construction hazard assessment as required.
- Work in accordance with instruction tools and protective devices provided
- Report any changing conditions or hazards that arise during task completion
- Ask for clarification if unclear about information provided or task assigned

#### Health and Safety Team:

- Develop policies and procedures to identify, assess and control hazards
- Provide training for supervisors and employees to effectively conduct hazard assessments
- Develop and maintain a HIRA in cooperation with employees and managers
- Complete an EMP, Pre-Construction Hazard Assessment and Site-Specific Safety Plan
- Act as a resource to site teams for ongoing hazard assessments and controls
- Attend pre job start up meetings and assist teams to create required plans

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.3: Pre-Construction Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 1	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 7	

## PRE-CONSTRUCTION HAZARD ASSESSMENT PROCEDURE

### Health and Safety Committee/Rep:

- Review policies and procedures as required
- Participate in assessments as required
- Provide recommendation for change

### REQUIREMENTS

#### Documentation:

- Corporate Hazard Identification and Risk Assessment Matrix
- Job Hazard Analysis form
- Site Specific Safety plan
- Environmental Management Plan
- Safe Job procedures
- Safe Work Practices
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90

#### Training:

- Hazard recognition and control
- Job Hazard Analysis
- Responsibilities as per legislation and the HSMS
- Site specific safety plan
- Selection, care and use of protective devices required

### REVIEW


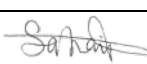
This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### DOCUMENT AND RECORD CONTROL

All documents and records generated as part of this procedure will be stored on HCSS/J-AAR's servers indefinitely. Any hard copies generated will be stored at J-AAR's head office for two years after project completion.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.4: Site Specific Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## SITE SPECIFIC HAZARD ASSESSMENT PROCEDURE

### PURPOSE

The purpose of this procedure is to reduce frequency and/or severity of incidents by providing information resources and guidance to assist in developing consistent site-specific health and safety plans (SSSP) for large projects. SSSP(s) document specific controls required to mitigate known hazards through anticipation of foreseeable site-specific conditions and safety requirements prior to mobilizing to site.

The procedure provides a framework for consistent hazard identification, mitigation, and communication used to plan and carry out legislative, customer and Health and Safety Management System (HSMS) requirements. In addition, the plan outlines roles, responsibilities for planning and communications.

### DEFINITIONS

**OHSMS:**

Occupational Health and Safety Management System

**Site-Specific Safety Plan (SSSP):**

A standard formal safety plan specific to a jobsite

### SCOPE

This procedure applies to all projects expected to last more than three (3) months.

The objective for a SSSP is to achieve the highest degree of safety possible through work planning hazard identification and risk mitigation specific to the conditions, scope of work, regulatory requirements, known and potential hazards and environmental factors.

SSSPs include both foreseeable actual and potential hazards as well as controls and mitigation measures documented in detail. Documentation includes applicable requirements of the HSMS, safe work procedures, practices, legislative responsibilities, and requirements to reduce risk to people, the environment and equipment.


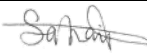
Information considered includes but is not limited to the project scope of work, known work methods, responsibility assignment, training, competency, pre-construction activities, mobilization, traffic flow, hazardous materials, inspections, security, hygiene, protective equipment, tools, materials, emergency response, mitigation measures, emergency contacts, legislative and customer requirements.

The SSSP will be reviewed as a part of site-specific orientation and a reference for daily work planning.

### PROCEDURE

**Planning**

- During the planning phase, the HSE department will act as a resource to the project management team providing expertise in depth knowledge of requirements
- The project manager will review details gathered from requirements provided by the customer (contract and scope of work) and document a description of the scope of work on the SSSP template.
- The project management team will determine the scope including work methods, schedule, tools, equipment, and risks etc.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.4: Site Specific Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## SITE SPECIFIC HAZARD ASSESSMENT PROCEDURE

- This knowledge and information gathered from the contract, scope of work, site visits, regulatory and HSMS requirements will be used to develop a SSSP

### Assessment

- The SSSP is used to record specific hazards and mitigation measures in detail, documenting potential and actual hazards, controls, applicable safe work procedures, practices, legislative responsibilities, and mitigation measures to reduce risk to people, the environment and equipment.
- The assessment includes but is not limited to the project scope of work, work methods, responsibility assignment, training, competency, pre-construction activities, mobilization, traffic flow, hazardous materials, inspections, security, hygiene, equipment, tools, materials, and emergency response, safety concerns, mitigation measures, emergency measures, contacts, legislative and customer requirements
- All persons doing assessments must be competent people based on knowledge, training and experience in the performance of the jobs


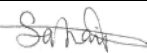
### Responsibility Assignment

- The project manager, Health and Safety Team or delegate will document:
- Assigned responsibilities (supervision, first aid, emergency response, safety representatives, etc.)
- Ensure selected employees are competent to carry out assigned roles
- Determine and document the emergency points of contact for the project including:
- President
- Construction Manager
- Health & Safety
- Fleet & Facilities Manager
- Project Manager
- Site Supervisor
- This list may vary based on stages of the project. Supervisors and workers may change; however, the management representatives will remain consistent.

### Emergency Information

The project manager, Health and Safety Team or delegate will document:

- The address or GPS point and phone numbers for the project site
- Contact information and address of the closest hospital
- A Map detailing the site and hospital address and route from site to the hospital
- Contact information for the closest police department
- Contact information for the Poison Control Centre
- Contact information for the Spills Action Centre,
- Contact information for the Fire Department
- Contact information for the Ministry of Natural Resources
- Contact information for the Ministry of Labour Training and Skills Development
- Contact information for the Ministry of Transportation Ontario

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.4: Site Specific Hazard Assessment Procedure</b>		
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	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 6	

## SITE SPECIFIC HAZARD ASSESSMENT PROCEDURE

### Site Set Up

The project manager or delegate will document:

- The site trailer position (if applicable)
- The lunch trailer location (if applicable)
- The contractor trailer position (if applicable)
- The lay down and delivery area
- The washroom and facilities area
- The muster point
- Traffic plans (where applicable)
- Machinery, tools and safety equipment
- Security requirements
- Hazardous materials
- Signage, fencing, barricades, traffic control

### Emergency Response



Develop and document plans to manage emergency situations including:

- Emergency Contacts
- Evacuation and All Clear Signal
- Evacuation Routes
- Gathering or Muster Area
- Medical Emergencies
- Fire Emergency
- Bomb Threat
- Severe weather including tornado, flood, blizzard, lightning
- Site specific rescue plans (where required)
- First Aid Person(s)

### Documenting the SSSP

Document the SSSP including but not limited to:

- Description and objective of the project and Restrictions (if any)
- Assignment of responsibility
- On site safety representation (Joint Health and Safety Committee or Worker Representative)
- Point of contact for safety related issues and stop work authority
- Work planning and pre-construction checklists
- Hazardous materials
- Inspections/Audits
- Security
- Personal hygiene and facilities
- Tools equipment and materials
- Project mobilization
- Orientation and training

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 2.4: Site Specific Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## SITE SPECIFIC HAZARD ASSESSMENT PROCEDURE

- Safety Meetings
- Incident reporting and management
- Contractor management
- Emergency response
- Extreme weather
- Disciplinary measures
- SSSP review

### Documenting the Plan

- Communicate the SSSP to the project coordinator, managers and supervisors as required
- Review and modify the SSSP as required

### Documentation, Review and approval and Retention

- SSSPs will be documented on the approved template. They are living documents updated as stages of construction, supervisors and emergency contacts change.
- Ongoing review of health, safety, environmental requirements and mitigation measures to ensure worker safety compliance with the OHSMS, customer and legislative requirements will be carried out as work progresses.
- SSSP will be modified as changes to site conditions, scope of work or as new hazard information becomes known.
- Changes to SSSP(s) will be communicated at the next daily safety meeting

## RESPONSIBILITIES

### Senior Management

- Review hazard assessment policies, procedures, practices, and Corporate HIRA
- Provide required resources for the development of ongoing hazard assessments


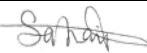
### Project Managers:

- Request the development of a SSSP
- Provide hazard information and assistance to the Health and Safety team as required
- Determine and communicate assigned site supervision and designated workers
- Support site supervisors in the implementation of the SSSP
- Provide information and request changes when conditions or scope of work change

### Supervisors

- Provide information and assistance for the development of SSSP
- Communicate SSSP to site employees, contractors and visitors as required
- Implement SSSP requirements on site
- Ensure the SSSP is available for review by workers and others (conspicuous place)
- Review the SSSP when work planning and looking ahead
- Ensure all required postings are posted and maintained on site



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.4: Site Specific Hazard Assessment Procedure</b>		
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	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## SITE SPECIFIC HAZARD ASSESSMENT PROCEDURE

- Report changes to scope of work, work methods or new hazards

### Workers:

- Review the SSSP as required
- Work in accordance with the SSSP
- Report any changing conditions or hazards that arise during the project

### Health and Safety Team:

- Review the scope of work and details gathered from the project management team
- Review actual and potential hazards associated with planned project activities
- Review legislative, HSMS and customer requirements including training, equipment, tools, and procedures, required to complete the work
- Assist in determining mitigation measures required to reduce risk to acceptable levels
- Determine any critical hazards and requirements for written procedures
- Review and document responsibilities, closest hospital, police, and fire departments
- Develop and document the site-specific safety plan and related documents
- Provide assistance and resources required for ongoing hazard assessment
- Communicate the contents of the SSSP

### Health and Safety Committee/Rep

- Participate and review Site SSSP as required
- Review this policy as required
- Make recommendations when applicable
- Identify and report new hazards for addition to SSSP



### Subcontractors

- Review SSSP with all workers prior to mobilizing to site
- Follow all requirements of the SSSP
- Report any changes to scope or methods of work

### Visitors

- Stay with escort at all times
- Review SSSP with all workers prior to mobilizing to site where required
- Follow all requirements of the SSSP



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 2.4: Site Specific Hazard Assessment Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 2, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## SITE SPECIFIC HAZARD ASSESSMENT PROCEDURE

### REQUIREMENTS

#### Documentation

- Corporate Hazard Identification and Risk Assessment Matrix
- Job Hazard Analysis form
- Site Specific Safety plan template
- Environmental Management Plan template
- Safe Job procedures
- Safe Work Practices
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90

#### Training

- Hazard recognition and control
- Job Hazard Analysis
- Responsibilities as per legislation and the HSMS
- Site specific safety plan
- Selection, care and use of protective devices required

### REVIEW


This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### DOCUMENT AND RECORD CONTROL

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 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Confined Space Entry/Work</b>								
		Initial HIRA score		20			Residual HIRA score		10	
		Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1			
		Description		Entering and working in confined spaces as defined by the Act			# OF PAGES:		4	


## SAFE WORK PRACTICES

### General

- Confined space work requires specialized training. Do not carry out this work if you are not properly trained
- Any worker required to wear fall protection equipment must be trained in its use and care. J-AAR requires all workers who wear fall protection equipment to attend an approved Working at Heights course
- Conduct an assessment of the space using J-AAR's Confined Space Evaluation Guideline, if needed
- Complete J-AAR's Confined Space Entry Permit and hazard assessment. Confined space work is considered a critical task by J-AAR
- Never enter a confined space without taking the proper precautions first
- Test the atmosphere inside the space with a calibrated and bump tested gas monitor.
- Each atmospheric test should be recorded, and time stamped on the confined space entry permit
- Ensure there are no biological or chemical agents in the space
- Purge or ventilate as required
- Continually test the air in the space
- There must be a dedicated attendant who is also trained in confined space entry/hazards at the access point the entire time work is being done
- Ensure that all workers involved are wearing the correct PPE for the task/retrieval if necessary
- Inspect all PPE/equipment involved before commencing work. If anything is found to be defective, tag it and remove it from service immediately
- If hot work will be undertaken in the space a hot work permit must be completed
- If conditions in the space become hazardous stop work immediately and exit

### Attendant

- **Under no circumstances is the attendant to ever enter the confined space**
- Remain alert and attentive at all times at the entrance
- Monitor the entrant
- Monitor the lifeline/rescue device of the entrant
- Provide assistance to the entrant

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Confined Space Entry/Work</b>								
		Initial HIRA score		20			Residual HIRA score		10	
		Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1			
		Description		Entering and working in confined spaces as defined by the Act			# OF PAGES:		4	

- Maintain constant contact with the entrant
- Initiate emergency response if necessary

#### Entrant

- Be aware of all hazards in the confined space
- Be aware of symptoms or warning signs of exposure
- Immediately report any concerns to the attendant
- Immediately exit the confined space if conditions dictate it, the attendant directs you to, or an alarm sounds


#### Communication

- Communication must be maintained between the attendant and entrant
- The attendant must be provided with an adequate device for summoning a rescue

#### Emergency Rescue

- Rescue procedures must be established before work commences
- If a rescue is required 911 must be called as well
- Under no circumstances should the attendant enter the space

<b>JOB HAZARD RISK ASSESSMENT</b>			
Initial HIRA Score	Hazards	Controls	Residual HIRA Score
20	Lack of Training	<ul style="list-style-type: none"> <li>Specialized training is required for entry/work in a confined space ensure workers involved are all competent before commencing work</li> <li>Work at Heights is mandatory training as the entrant must wear fall protection equipment</li> </ul>	10
20	Lack of Inspection	<ul style="list-style-type: none"> <li>J-AAR's confined space evaluation guideline may be completed prior to work commencing</li> </ul>	10


 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Confined Space Entry/Work</b>						
	Initial HIRA score		20			Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1	
	Description		Entering and working in confined spaces as defined by the Act			# OF PAGES:	4

		<ul style="list-style-type: none"> <li>A confined space entry permit, including hazard assessment, must be completed before entry</li> </ul>	
20	Lack of/inadequate Equipment	<ul style="list-style-type: none"> <li>Rescue equipment should be made available and kept with the attendant/kept available at all times during the operation</li> <li>Required PPE should be established before work commences</li> <li>Equipment should be inspected before work commences</li> <li>Rescue team/procedures should be established before work commences</li> </ul>	10
20	Exposure to Atmospheric/chemical Hazards	<ul style="list-style-type: none"> <li>Constantly monitor the space for atmospheric hazards</li> <li>Provide adequate ventilation if possible</li> <li>Ventilate space if required with blower</li> </ul>	10

## SAFE WORK PROCEDURES

### Planning

1. Confined space entry requires specialized training. Ensure all workers involved in the task are properly trained
2. Ensure at least one rescue worker involved is trained in first aid
3. Complete the J-AAR Confined Space Evaluation Guideline form, if needed
4. Assign roles for each worker involved with the confined space. Ensure they understand their responsibilities and roles. Attendants must not be assigned any other tasks throughout the duration. Rescue team members and the attendant must have adequate means of communication at all times
5. Establish rescue procedures
6. Complete the J-AAR Confined Space Entry Permit
7. Ensure all required PPE is available
8. Ensure all required rescue equipment is available
9. Inspect all equipment – any defective equipment should be tagged and removed from service immediately

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Confined Space Entry/Work</b>				
	Initial HIRA score		20		Residual HIRA score
					10
	Critical Task?	Yes	Location(s)	Jobsites	REVISION # 1
Description		Entering and working in confined spaces as defined by the Act			# OF PAGES: 4


10. Vent mechanically if required

#### **During the Task**

1. Implement any controls for hazards found during the completion of the Confined Space Entry Permit
2. Have attendant in place at all times
3. Have attendant/entrant complete their sections of the permit
4. Rescue team must be made available if necessary
5. Monitor and control atmospheric hazards throughout the process
6. Ensure constant communication between the attendant and entrant

#### **After the task**

1. Ensure all workers are accounted for
2. Complete and close the confined space entry permit
3. Ensure all equipment is safely stored

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Hoisting and Rigging for a Critical Lift</b>						
	Initial HIRA score		15			Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1	
	Description		Using hoisting and rigging equipment on sites for a lift defined as critical using the criterial below			# OF PAGES:	4

## CRITICAL LIFT DEFINED

A lift is deemed critical when one or more of the following conditions are met:

- A lift over 8,000kg (this exceeds the typically safe load weight of most of our equipment),
- a tandem lift involving the simultaneous use of two or more cranes, hoists or other pieces of powered lifting equipment,
- a lift involving unstable pieces,
- a non-routine lift requiring detailed planning and additional or unusual safety precautions,
- any lift which the operator believes is critical.

Critical lifts are prone to more hazards and higher risks. A greater emphasis on planning is therefore required. A critical lift plan and hazard assessment are required before carrying out any critical lift.


## SAFE WORK PRACTICES

### General

- Inspect all hoisting and rigging equipment before use. All equipment should be marked using the current years tag. Tag and remove any defective equipment from service immediately
- Do not exceed the rate load capacity for any piece of equipment used in rigging or hoisting – If you do not know ask your supervisor
- Select the proper type of rigging device based on the task at hand –Do not use a webbed sling if there is a risk of sharp edges cutting it
- All loads must be secure before hoisting
- Keep clear of pinch points
- Only competent workers should be involved in hoisting and rigging

### Cranes

- Cranes should only be set-up and operated by a competent worker with a valid ROT
- Ensure the crane is on a level surface before beginning work
- Critical lift forms should be completed before any crane lift
- Pre use inspection of the crane must be documented before beginning work
- Swampers and operators should establish communication systems before beginning any work

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Hoisting and Rigging for a Critical Lift</b>						
	Initial HIRA score		15			Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1	
	Description		Using hoisting and rigging equipment on sites for a lift defined as critical using the criterial below			# OF PAGES:	4

### Excavators

- Ensure the machine selected is capable of lifting the load
- Should only be operated by competent workers
- Pre use inspection required before any work is undertaken
- Make sure there are no overhead hazards in the lift path
- Signalers and operators should establish a communication system before beginning any work

### Suspended loads

- Never leave the controls of a machine with a suspended load
- Loads should never be passed over workers below
- Lifts should be pre-planned with J-AAR supervision to try and keep foot traffic to a minimum

### Staging areas

- The area under the lift should be danger taped off with adequate danger due to signs posted
- If necessary use a traffic control person to control pedestrian and vehicular traffic


### Overhead hazards

- Ensure the minimum required distances are kept between equipment and power lines
- Always assume powerlines are live
- Use a spotter if necessary

### External Factors

- Keep wind and weather in mind while planning lifts
- Do not lift if there is extreme weather

<b>JOB HAZARD RISK ASSESSMENT</b>			
Initial HIRA Score	Hazards	Controls	Residual HIRA Score
20	Electrical Overhead	<ul style="list-style-type: none"> <li>• All overhead hazards must be identified before the lift</li> <li>• Use spotters to help avoid coming to close to lines</li> </ul>	10

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Hoisting and Rigging for a Critical Lift</b>						
		Initial HIRA score		15			Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1	
		Description		Using hoisting and rigging equipment on sites for a lift defined as critical using the criteria below			# OF PAGES:	4


20	Falling Objects	<ul style="list-style-type: none"> <li>• Ensure all workers involved in rigging are competent</li> <li>• Ensure no load is passed over a worker</li> <li>• If the load looks unbalanced as it comes off the ground stop the lift and re-rig</li> </ul>	
20	Equipment overload/failure	<ul style="list-style-type: none"> <li>• Ensure equipment selected is capable of lifting the load</li> <li>• Ensure all equipment/lifting devices have been inspected before use.</li> <li>• Equipment must be used within the operating parameters set out in the manufacturer's manuals</li> </ul>	5
20	Lack of training	<ul style="list-style-type: none"> <li>• All workers must be competent for the tasks they are assigned</li> <li>• All crane operators must have valid ROT's in their possession</li> <li>• All equipment operators must be competent</li> </ul>	5
15	Improper maintenance	<ul style="list-style-type: none"> <li>• All equipment must be maintained per manufacturer's instructions</li> <li>• All J-AAR equipment is subject to J-AAR's PM policy and procedure</li> </ul>	5

## SAFE WORK PROCEDURES

### Planning

1. Complete the critical lift plan
2. Ensure all required equipment and PPE determined in the hazard assessment is available
3. If any overhead hazards were identified – implement the necessary controls, including spotters



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Hoisting and Rigging for a Critical Lift</b>						
	Initial HIRA score		15			Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1	
	Description		Using hoisting and rigging equipment on sites for a lift defined as critical using the criterial below			# OF PAGES:	4


4. Ensure all the selected equipment, machinery, and PPE is inspected before use. If anything is found to be defective tag it and remove it from service immediately
5. Danger tape off staging/lift areas and post danger due to signs as required
6. Ensure all workers involved in the task are competent
7. Spotters/Swampers and operators need to establish a means of communication

#### **During the Task**

1. Rig material and inspect connections before lifting
2. Hoist material slowly off the ground. Ensure load is balanced
3. Loads should never be passed overhead of a worker

#### **Completion**

1. Ensure all equipment and PPE is stored safely per manufacturer's instructions
2. Housekeeping as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Traffic Control</b>						
	Initial HIRA score		20			Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1	
	Description		Directing vehicular/pedestrian traffic in/around construction areas			# OF PAGES:	

## SAFE WORK PRACTICES

### General

- When possible, face traffic at all times
- Maintain usable lane width of at least 3m in any travelled lane
- Workers should have an escape route planned incase a vehicle enters the work area
- Never work in live traffic without an MTO book 7 compliant protective layout
- Set up traffic control devices at the upstream end of the area
- Ensure you are always visible to traffic/equipment

### Signal Person for Equipment/Backing Vehicles on Site


- A signaler must be a competent person and receive adequate written and oral instruction from their supervisor. Before beginning work as a signal person ensure that J-AAR's 'Signal Person Instruction' form is completed and understood.
- Signalers are required when there is work near overhead electrical hazards; traffic control; and reversing equipment or vehicles.
- Signal persons must wear the correct PPE as outlined in MTO's *Book 7*
- Must remain in clear view of the operator they are providing signals for
- A means of communication between signaler and operator should be established before work commences (hand signals, use of two-way radio, etc.

### Traffic Protection Plan

- All employers who may have a worker exposed to traffic hazards must have a written, site-specific procedure in place
- Ensure the J-AAR traffic protection plan form has been completed prior to commencing work
- If you have any questions about the plan or your role in it bring them up with your supervisor

### Traffic Control Plan

- TCP's are typically developed by the constructor to help manage the flow and hazards of traffic on a specific job site
- All workers involved in traffic control should be familiar with the site-specific TCP before commencing work

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Traffic Control</b>					
	Initial HIRA score		20		Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites	REVISION # 1	
	Description		Directing vehicular/pedestrian traffic in/around construction areas		# OF PAGES:	

### Housekeeping


- Ensure TCP's and signs are not accidentally hidden by equipment/material
- Ensure walkways are clear of material/debris

### Personal Protective Equipment


- Per the *Regulations* any "worker who may be endangered by vehicular traffic shall wear a garment that covers at least his or her upper body and has the following features:
  1. The garment shall be fluorescent blaze or international orange in colour.
  2. On the front and the back, there shall be two yellow stripes that are 5 centimetres wide. The yellow area shall total at least 500 square centimetres on the front and at least 570 square centimetres on the back.
  3. On the front, the stripes shall be arranged vertically and centred and shall be approximately 225 millimetres apart, measured from the centre of each stripe. On the back, they shall be arranged in a diagonal "X" pattern.
  4. The stripes shall be retro-reflective and fluorescent. O. Reg. 145/00, s. 23.
- (2) If the garment is a vest, it shall have adjustable fit. O. Reg. 145/00, s. 23.
- (3) A nylon vest to which this section applies shall also have a side and front tear-away feature. O. Reg. 145/00, s. 23; O. Reg. 345/15, s. 12.
- (4) In addition, a worker who may be endangered by vehicular traffic during night-time hours shall wear retro-reflective silver stripes encircling each arm and leg, or equivalent side visibility-enhancing stripes with a minimum area of 50 square centimetres per side. O. Reg. 145/00, s. 23."
- Consult MTO book 7 and J-AAR's PPE program for further information

## **JOB HAZARD RISK ANALYSIS**

Initial HIRA Score	Traffic Control Hazards	Controls	Residual HIRA Score
20	Struck by equipment or vehicle	<ul style="list-style-type: none"> <li>• Ensure there is an active, compliant, traffic control plan in place for the job site</li> <li>• Ensure signalers are used when required</li> </ul>	10
10	No/poor signaling	<ul style="list-style-type: none"> <li>• Ensure signalers are used when required</li> </ul>	5

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Traffic Control</b>					
	Initial HIRA score		20		Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites	REVISION # 1	
	Description		Directing vehicular/pedestrian traffic in/around construction areas		# OF PAGES:	

		<ul style="list-style-type: none"> <li>Ensure all signalers are competent individuals</li> </ul>	
10	Lack of training	<ul style="list-style-type: none"> <li>Ensure all workers are competent for the tasks assigned</li> <li>Ensure J-AAR's Signal person instruction form is completed and understood by the worker</li> </ul>	5
8	Lack of Communication	<ul style="list-style-type: none"> <li>Traffic control plan and traffic protection plan should be communicated to workers at the daily safety meeting</li> <li>Persons involved in traffic control should establish a means of communication before commencing work (hand signals, two-way radio, etc)</li> </ul>	4
10	Incorrect PPE/PPE not used correctly	<ul style="list-style-type: none"> <li>All workers must wear CSA Class 2 high-vis PPE</li> <li>Night-time operations require additional PPE</li> <li>Traffic control operations require additional PPE</li> </ul>	5
10	Limited Visibility	<ul style="list-style-type: none"> <li>Signalers should be used any time a driver/operator's sightlines could become obstructed</li> <li>Additional signage/signal persons should be used as required</li> </ul>	5
8	Poor site planning	<ul style="list-style-type: none"> <li>Traffic control plan and traffic protection plan should be developed for specific sites</li> <li>Every project should be planned and organized so that vehicles, machines, and equipment are not to be operated in reverse, or operated in reverse as little as possible</li> </ul>	4

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Traffic Control</b>					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites	REVISION # 1	
		Description		Directing vehicular/pedestrian traffic in/around construction areas		# OF PAGES:	

## SAFE WORK PROCEDURES

### Planning


1. Ensure the J-AAR Traffic Protection Plan has been completed
2. Review the site-specific Traffic Control Plan if available
3. Complete the J-AAR Signal Person Instruction form
4. Conduct the daily JHA
5. Ensure all required PPE is available
6. Inspect all PPE and traffic control devices, any defective equipment should be tagged and removed from service immediately
7. Workers involved in traffic control should establish means of communication
8. Ensure all required PPE is being used correctly by the workers

### During Traffic Control

1. Ensure all Traffic Control Plan requirements have been met or exceed
2. Begin set up of all traffic control devices at the upstream end of traffic
3. Close one lane at a time, following MTO Book procedures
4. When required – mark temporary lines as required
5. Ensure traffic control personnel/devices are not obstructed by any signs or equipment
6. Those involved in TC should not be assigned any other tasks
7. Supervisors should inspect the set up to ensure it is done correctly/effectively

### Completion


1. Re-open/re-direct roadways as required
2. Remove/safely store all signs/equipment/material
3. Ensure the work area has been cleaned as any material has been stored

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Trenching and Excavation</b>					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites	REVISION # 1	
		Description		Tasks which involve the excavation of materials and working in excavations		# OF PAGES:	6

## SAFE WORK PRACTICES

### General

- Before work begins on a trench or excavation soil type must be determined and valid locates must be obtained
- Operators who are digging in the vicinity of utilities must complete a J-AAR “Pre-Dig and Post Dig’ hazard assessment
- Mechanical excavation must not be used closer than 0.3M (1’) in any direction of a utility line. It must be hand dug or done using a hydro-vac.
- There are four soil types:
  - o Type 1 is hard, very dense and is only able to be penetrated manually with a small sharp object. It has low moisture content and has no signs of seepage. It can only be excavated by mechanical equipment
  - o Type 2 is very stiff, dense and is difficult to penetrate manually. It has low – medium moisture content and has a damp appearance after it is excavated
  - o Type 3 soil is soil that has previously been excavated; or soil that is stiff to firm or compact to loose consistency and has one or more of the following: signs of surface cracking; signs of water seepage; if it is dry, it may run easily into a well-defined conical pile; exhibits a low degree of internal strength
  - o Type 4 soil is soft – very soft and very loose in consistency. It is sensitive to disturbance and runs easily or flows/is wet muddy. Type 4 soils will also exert fluid pressure on structures.
- Trench safety depends greatly on the type of soil being disturbed. Trenches not protected by an engineered shoring system or trench box must be dug in different ways depending on soil type (no trench can have a vertical wall greater than 1.2m unless it is made of stable rock)
- Type 1 and 2 soils may have a vertical wall of 1.2m. a 1:1 slope is required once this height is reached
- Type 3 soils must be sloped at 1:1 from the floor of the trench upwards
- Type 4 soils must be sloped at least 1:3 from the floor of the trench
- Exhaust from equipment must not be allowed to accumulate in a trench of excavation.
- Every trench must be kept reasonably clear of water
- No person shall work in a trench unless another worker is above ground in close proximity to the trench.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Trenching and Excavation</b>							
		Initial HIRA score		20			Residual HIRA score		10
		Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1		
		Description		Tasks which involve the excavation of materials and working in excavations			# OF PAGES:		6

- No excavation shall be performed that will affect the stability of a building or structure until precautions have been taken to prevent damage or falling.
- For hydro poles, the base of the pole needs to be out of the 1:1 zone + 1m buffer, otherwise requires pole support or shoring.
- Precautions must be taken during an excavation to prevent rocks or loose materials from striking a worker.
- All excavated trench material (spoils) must be kept a minimum of 1 metre from the edge to the toe of the spoil pile. This includes equipment and materials.

#### **Underground Hazards and Locates**

- Ensure valid locates are available
- All utilities must be protected and supported

#### **Overhead Powerlines**

- All overhead lines should be marked
- Use a spotter if there is a chance of equipment encroaching a powerline
- Minimum distances: 750 or more volts, but no more than 150,000 volts- 3 meters. More than 150,000 volts, but no more than 250,000 volts- 4.5 meters. More than 250,000 volts- 6 meters

#### **Access and Egress**


- All ladders must be properly set up and secured
- If the trench poses a fall hazard of over 2.4m, ensure there is a proper barricade and signage

#### **Equipment**

- All heavy equipment must be inspected/recorded daily. If any equipment is found to be defective, tag it and remove from service immediately
- Regular inspection of a trench ought to be carried out by J-AAR supervision throughout the workday to ensure proper slope, shoring, etc

#### **Trench box**

- Trench boxes are not usually intended to shore up or support trench walls. They are meant to protect workers in case of a cave-in.
- Trenches must be backfilled immediately following the use of a trench box.


 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Trenching and Excavation</b>							
		Initial HIRA score		20			Residual HIRA score		10
		Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1		
		Description		Tasks which involve the excavation of materials and working in excavations			# OF PAGES:	6	

- When using a trench box, the engineered drawings and specifications must be kept at the site and the trench box must be properly identified.
- As long as workers are in the trench, they should remain in the trench box.
- Inspect trench boxes for structural damage, cracks in welds and other damage.
- Check ground surface for tension cracks which may develop parallel to the trench at a distance one-half to three-quarters of the trench depth.
- Check the trench box often to make sure it is not shifting or settling more on one side than the other.

### **Back Filling**


- Inspect all equipment before use. Any equipment found to be defective should be tagged and removed from service. Let J-AAR supervision know immediately.
- Do not proceed with backfilling until all required inspections and testing has been completed.
- Ensure there is communication between workers in the excavation and operators.
- Ensure areas to be backfilled are clear of debris.
- Do not backfill around areas where cast in place concrete has been poured less than 24 hours ago.
- Do not use vibratory equipment in areas which could cause harm to other workers (trench collapse, exhaust build up, etc.)
- Do not push final backfill onto pipe without it being properly braced.




 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Safe Job Practices and Procedure – Trenching and Excavation</b>						
	Initial HIRA score		20			Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1	
	Description		Tasks which involve the excavation of materials and working in excavations			# OF PAGES:	6

### JOB HAZARD RISK ASSESSMENT

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
20	No shoring/sloping	<ul style="list-style-type: none"> <li>Every trench deeper than 1.2 meters requires proper slope or an engineered supportive device/shoring</li> </ul>	10
20	Improper Sloping	<ul style="list-style-type: none"> <li>Soil type needs to be determined before commencing work.</li> <li>If proper slope cannot be maintained than engineered supports need to be used</li> </ul>	10
20	Underground hazards	<ul style="list-style-type: none"> <li>Ensure J-AAR crews are in possession of valid locates before work commences</li> <li>Ensure there is adequate ground markings before commencing work</li> <li>If a utility may pose a hazard, the utility owner should disconnect, if possible</li> <li>No machine digging within 1' of utilities</li> </ul>	10
20	Struck by	<ul style="list-style-type: none"> <li>Ensure spotters are used where an operator/driver's line of sight may become obstructed</li> <li>Workers should not enter an excavator's swing zone without first communicating with the operator</li> <li>Operators should do their best to be aware of changing site conditions</li> </ul>	10
20	Exposure to Atmospheric Hazards	<ul style="list-style-type: none"> <li>Exhaust should not be allowed to accumulate in a trench</li> <li>Equipment at the top of the trench should be staged in a way that does not allow the</li> </ul>	10

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Trenching and Excavation</b>					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites	REVISION # 1	
		Description		Tasks which involve the excavation of materials and working in excavations		# OF PAGES:	6

		accumulation of exhaust in the trench	
15	Access/Egress	<ul style="list-style-type: none"> <li>Ensure the correct ladder is selected, inspected, and set up correctly</li> <li>If a trench box is being used ensure the ladder is properly located</li> </ul>	10
15	Objects Stored Improperly	<ul style="list-style-type: none"> <li>A level area extending at least 1m from the top of an excavation should be kept clear or equipment and material</li> </ul>	5
15	Vehicle and pedestrian traffic	<ul style="list-style-type: none"> <li>Ensure trenches and excavations are properly secured</li> <li>All reasonable precautions must be taken to ensure the safety of everyone effected by the work</li> </ul>	5
15	Improper Planning	<ul style="list-style-type: none"> <li>Ensure engineered supports are in good condition, available, and appropriately sized</li> <li>Ensure equipment on site is the correct size to move material/equipment required</li> <li>Ensure all workers involved are competent for the tasks assigned to them</li> </ul>	5
10	Water accumulation	<ul style="list-style-type: none"> <li>Trenches must be adequately dewatered before work commences</li> </ul>	5

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Trenching and Excavation</b>						
	Initial HIRA score		20			Residual HIRA score	10
	Critical Task?	Yes	Location(s)	Jobsites		REVISION # 1	
	Description		Tasks which involve the excavation of materials and working in excavations			# OF PAGES:	6

## SAFE WORK PROCEDURES

### Planning


1. Ensure valid locates are on site
2. Ensure all workers involved in the task are competent for the work assigned to them
3. Ensure all equipment and PPE required is available
4. Inspect all equipment and PPE. If anything is found to be defective, tag it and remove from service immediately
5. Complete the J-AAR Daily Dig Permit. Ensure all controls identified are implemented before beginning work
6. Ensure jobsite is secure and not a hazard to the public.

### During the task

1. Post danger due to signs as required
2. Ensure secure and safe means of access and egress
3. Ensure a site-specific material storage and staging plan is implemented
4. Ensure trenches are kept reasonably free of water/snow/ice
5. Do not remove material from under any adjacent existing structures
6. J-AAR supervision should inspect the trench/excavation throughout the day
7. Ensure shoring/other engineered protective devices are used as necessary throughout the operation. If the soil is type 4, protection must be installed preemptively
8. Maintain any stamped drawings/manuals onsite throughout the duration of work
9. Ensure the excavation is secured at the end of the day if it is still open. Proper barricades and signage must be used

### Completion

1. Ensure all equipment/tools/materials are safely stored
2. Housekeeping as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Working at Heights</b>					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites, Asphalt plant	REVISION # 1	
		Description		Performing tasks which expose the worker to falls prescribed by the Regs.		# OF PAGES:	5

## SAFE WORK PRACTICES

### General


- Working at heights requires specialized training. Do not carry out this work if you are not properly trained
- Working at heights is considered a critical task by J-AAR. A job hazard assessment must be completed before commencing work
- Any unsafe conditions should be reported to your supervisor immediately
- If possible, protection from heights by a guardrail system is considered J-AAR's best practice
- If a guardrail system is not practicable then try to protect yourself with a travel restraint system. Fall arrest systems are a last resort
- If your anchor points are not engineered, ensure they are capable of absorbing 8 kilonewtons (1798 pounds) of force from a static load
- Calculate your distance from D-ring to ground. Ensure your system will stop you before you run out of room
- Calculate your swing area if your anchor point is not directly above you
- Inspect all components of your travel restraint or fall arrest system before every use. If any component is found to be defective immediately tag it and remove it from service
- All workers who use fall protection devices (including confined space work) are required to have valid working at heights training. If you do not have valid training inform your supervisor and they will find another task for you.
- Ensure there is a site-specific working at heights rescue plan before commencing work
- If a worker has their fall arrested, call 911 and your supervisor immediately

### Surface Opening/Floor covering

- All surface openings must be protected by a guardrail or adequate, secured covering.

### Guardrails

- Guardrails must consist of a top rail, mid rail, and toe board
- The top rail must be between 0.9m and 1.1m above the surface
- The mid rail must be located between the top rail and the toe board
- The toe board must extend from the surface at least 89mm
- The guardrail must be located no more than 30mm from the edge of the surface

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Working at Heights</b>					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites, Asphalt plant	REVISION # 1	
		Description		Performing tasks which expose the worker to falls prescribed by the Regs.		# OF PAGES:	5

- Guardrails must meet the force requirements laid out in the regulation
- Posts may only be 2.4m apart

#### Travel Restraint

- Travel restraint systems prevent the worker from reaching a potential fall
- The system must be configured in such a way that when fully extended, the worker cannot reach the edge


#### Fall Arrest

- A fall arrest system aims to reduce the severity of injury by stopping a fall before the ground
- If a worker has their fall arrested, the MLTSD must be informed in writing within 48 hours.


#### Rescue Plan

- There must be a site-specific rescue plan in place if a fall may occur
- Do not begin work with the potential for a fall without a rescue plan

JOB HAZARD RISK ASSESSMENT				
	Initial HIRA Score	Hazards	Controls	Residual HIRA Score
	20	Inadequate Travel Restraint	<ul style="list-style-type: none"><li>Workers must be competent in the tasks assigned to them</li><li>The distance between the anchor and edge must be calculated when assembling a travel restraint system</li><li>Proper WAH training</li><li>Correct equipment used</li><li>Other factors like sources of heat/extreme cold/tying off below the D-ring, must be taken into account when selecting travel restraint equipment</li></ul>	10

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Working at Heights</b>					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites, Asphalt plant	REVISION # 1	
		Description		Performing tasks which expose the worker to falls prescribed by the Regs.		# OF PAGES:	5

20	Inadequate Fall Arrest	<ul style="list-style-type: none"> <li>Workers must be competent in the tasks assigned to them</li> <li>The fall distance and swing radius must be calculated when assembling a fall protection system</li> <li>A rescue plan must be developed</li> <li>Proper WAH training</li> <li>Correct equipment used</li> <li>Other factors like sources of heat/extreme cold/tying off below the D-ring, must be taken into account when selecting fall protection equipment</li> </ul>	10
20	Inadequate Travel Restraint	<ul style="list-style-type: none"> <li>Workers must be competent in the tasks assigned to them</li> <li>The distance between the anchor and edge must be calculated when assembling a travel restraint system</li> <li>Proper WAH training</li> <li>Correct equipment used</li> <li>Other factors like sources of heat/extreme cold/tying off below the D-ring, must be taken into account when selecting travel restraint equipment</li> </ul>	10
20	Falls	<ul style="list-style-type: none"> <li>PPE, which is CSA approved and appropriate for the task must be worn by a competent worker at all times they are exposed to a fall hazard</li> <li>Conduct a hazard assessment before beginning work to determine the correct fall protection needed for the specific task</li> <li>Proper WAH training</li> </ul>	10
20			10


 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Working at Heights</b>							
		Initial HIRA score		20			Residual HIRA score		10
		Critical Task?	Yes	Location(s)	Jobsites, Asphalt plant		REVISION # 1		
		Description		Performing tasks which expose the worker to falls prescribed by the Regs.			# OF PAGES:	5	

	Improper equipment usage/installation	<ul style="list-style-type: none"> <li>• Guardrails installed correctly in accordance with the Regs.</li> <li>• Anchors selected must be either engineered or capable of withstanding the forces outlined in the Regs.</li> <li>• Using fall equipment properly w/ WAH training</li> <li>• Proper WAH training</li> </ul>	
20	Lack of Inspection	<ul style="list-style-type: none"> <li>• WAH PPE should be visually inspected before every use and formally inspected at least monthly</li> <li>• Equipment like SRL's need to be revalidated at least annually depending on usage</li> <li>• Always consult the manufacturer's instructions for revalidation periods</li> </ul>	5
20	Lack of Training	<ul style="list-style-type: none"> <li>• Workers must have valid, Ministry approved Working at Heights training if using fall protection devices.</li> </ul>	5
20	Lack of Planning	<ul style="list-style-type: none"> <li>• Workers must be competent for the tasks assigned to them</li> <li>• Working at heights rescue plans must be available before starting work where a fall may occur</li> <li>• Rescue equipment must also be available and in good condition before beginning work</li> </ul>	5

## SAFE WORK PROCEDURES

### Planning

1. Working at Heights requires specialized training. Ensure all workers involved in the task are properly trained
2. Conduct a job hazard assessment. Working at heights is considered a critical task
3. Calculate any fall distances/swing radius for fall arrest

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Working at Heights</b>					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites, Asphalt plant	REVISION # 1	
		Description		Performing tasks which expose the worker to falls prescribed by the Regs.		# OF PAGES:	5

4. Ensure that all PPE/WAH equipment identified in the hazard assessment is available
5. Inspect all PPE and WAH equipment, anything found to be defective should be tagged and removed from service immediately
6. Ensure there is a working at heights rescue plan in place and all workers know their assigned roles/responsibilities for any fall that may occur
7. The preferred method of control for tasks being done at heights is guard rails. Only if installing guard rails is not practicable should other methods be used.
8. Following guard rails, travel restraint is preferred
9. Lastly consider fall arrest

#### **During the task**

1. If removing a guardrail/protective device that is normally there; first danger tape off the area and put-up adequate danger due to signage
2. Fall protection must be used at all times after guardrail removal
3. Fall protection must be used at all times on PEWPs
4. Ensure selected anchor points meet the requirements set out in the Regs
5. Ensure any protective devices are replaced and re-secured if removed
6. Guardrails are to be installed/re-installed by a competent worker


#### **If a Fall is Arrested**

1. Call 911
2. Inform J-AAR supervision
3. Put the working at heights rescue plan into effect
4. Make sure no other workers are put in harm's way while carrying out the rescue
5. Ensure a debrief takes place with all workers involved
6. Inform the Ministry within 48 hours per O. Reg 420/21

#### **End of Task**

1. Ensure all PPE/WAH equipment is safely stored per the manufacturer's instructions
2. Housekeeping as required



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Overhead Electrical Hazards</b>								
		Initial HIRA score		15			Residual HIRA score		10	
		Critical Task?	Yes	Location(s)	Jobsites,		REVISION # 1			
		Description		Working around overhead power lines			# OF PAGES:		4	

## SAFE WORK PRACTICES

### General


- Ensure legislated minimum distances are maintained:
  - 750 or more volts, but no more than 150,000 volts = 3 meters
  - More than 150,000 volts, but no more than 250,000 volts = 4.5 meters
  - More than 250,000 volts = 6 meters
- Voltages for overhead wires are determined by the utility
- If voltage is unknown, treat it as 250,000 and keep 6 meters away
- Assume all lines are live unless they have been locked/tagged out by utility owner
- Complete the J-AAR Electrical Hazard Plan whenever working in proximity to overhead lines
- Overhead hazards should be marked with appropriate signage

### In the Event of Contact with Overhead Lines

- Stay in the equipment
- Warn others to keep away
- Call your supervisor – they will need to inform the utility
- If you must evacuate the equipment due to fire or a greater hazard, jump as far away from the cab as possible. Do not make contact with the equipment and the ground at the same time. If possible, land on both feet.
- Shuffle away keeping both feet on the ground, do not take big steps

### Spotter

- Use a spotter when working in the proximity of overhead lines
- Establish an effective form of communication prior to beginning work
- Spotters should be competent workers. Complete the J-AAR Electrical Hazard Form prior to commencing work

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Overhead Electrical Hazards</b>						
		Initial HIRA score		15			Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites,		REVISION # 1	
		Description		Working around overhead power lines			# OF PAGES:	4


### JOB HAZARD RISK ASSESSMENT

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
20	Lack of Training	<ul style="list-style-type: none"> <li>All equipment operators must be competent workers</li> <li>All signalers must be competent workers</li> </ul>	10
15	Lack of Communication	<ul style="list-style-type: none"> <li>Site-specific hazards should be communicated to workers by J-AAR supervision/the contractor at the time of site-specific orientation, and when a work task is assigned</li> <li>If you are unsure about anything, ask your supervisor for clarification</li> </ul>	10
10	Poor planning	<ul style="list-style-type: none"> <li>Overhead hazards should be marked with appropriate signage</li> <li>Use spotters</li> <li>Complete the Electrical Hazard Plan</li> </ul>	5

### SAFE WORK PROCEDURES

#### Planning

1. Complete the J-AAR Electrical Hazard plan. Work around overhead lines is considered a critical task
2. The spotter and operator should establish a means of communication prior to beginning work
3. Determine the voltage of the lines if possible. If not keep a 6m distance


 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Overhead Electrical Hazards</b>					
		Initial HIRA score		15		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites,	REVISION # 1	
		Description		Working around overhead power lines		# OF PAGES:	4

### **During the task**

1. The operator and signaler should remain in communication throughout the task.

### **Completion**

1. Store/park all equipment, tools, and PPE safely as per the manufacturer's instructions
2. Housekeeping as required

	Section: Safe Job Practices and Procedure – Asphalt Paving					
	Initial HIRA score		15		Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
	Description		Placing hot mix asphalt through the use of equipment/manual touch ups as required.		# OF PAGES:	5

## SAFE WORK PRACTICES

### General


- Ensure everyone working on the task understand their roles, responsibilities, and actual/potential Hazards
- Any unsafe conditions including defective equipment/PPE must be reported to J-AAR supervision immediately
- Most experienced rake person should work closest to traffic with the least experienced working in the most protected areas
- Always use the buddy system to help your crew members spot potential hazards they might not notice while working
- Unless authorized to operate them by J-AAR supervision/management no one is permitted on the screed platform or paver
- Always follow the manufacturer's instructions when operating equipment
- No headphones/cell phone use while paving operations are underway

### Traffic Control

- All traffic control measures must be implemented per MTO's Book 7
- All traffic control personnel must be competent

### Equipment

- Never leave equipment unattended while in operation – this includes the paver while it is heating
- Operators must signal the crew any time they resume movement after being stationary for some time
- Never operate the paver at a pace which could put the crew in an unsafe situation
- Try and keep 10m of safe space around operating paving equipment. Operators are to slow down if this is not achievable
- A pre-use inspection of all equipment required for the task must be completed before work commences. If anything is found to be defective, tag it and remove it from service immediately. Notify J-AAR supervision as soon as you can.
- If possible, never put yourself in equipment's path of travel. Always stay downstream or to the side of mobile equipment.

	Section: Safe Job Practices and Procedure – Asphalt Paving					
	Initial HIRA score		15		Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
	Description		Placing hot mix asphalt through the use of equipment/manual touch ups as required.		# OF PAGES:	5

### Night Work

- Ensure temporary lighting is adequate for the task
- Ensure lighting does not create a new hazard by aiming the light in a way which may blind oncoming traffic
- Ensure all workers are wearing appropriate PPE for night work

### Signalers

- Required for backing vehicles
- Required if dump trucks may come near overhead lines

### External Factors

- Asphalt paving cannot happen in wet conditions
- Be very aware of heat stress during asphalt paving tasks

## JOB HAZARD RISK ASSESSMENT

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
15	Lack of training/communication	<ul style="list-style-type: none"> <li>• All operators must be qualified/competent</li> <li>• Ensure a site-specific orientation has been attended by all crew members</li> <li>• Ensure JHA carried out before commencing task</li> </ul>	5
10	Housekeeping	<ul style="list-style-type: none"> <li>• Keep work area clean</li> <li>• Ensure material and debris is not in the path of travel</li> <li>• Ensure tools/equipment are cleaned after the task</li> <li>• Ensure there are not trip hazards in the path of travel</li> </ul>	5
20	Improper Chemical use	<ul style="list-style-type: none"> <li>• Ensure all chemicals are labeled according to WHMIS 2015 standards</li> <li>• Ensure all chemicals have corresponding SDS'</li> </ul>	5



## Section: Safe Job Practices and Procedure – Asphalt Paving

Initial HIRA score

15

Residual  
HIRA  
score

5

Critical  
Task?

No

Location(s)

Jobsites

REVISION # 1


Description

Placing hot mix asphalt through the use of  
equipment/manual touch ups as required.

# OF  
PAGES:

5

		<ul style="list-style-type: none"> <li>Ensure all chemicals are stored and transported according to the SDS</li> <li>Ensure all required PPE for safe handling is available and used correctly when handling</li> </ul>	
20	Struck by	<ul style="list-style-type: none"> <li>Ensure spotters are used where an operator/driver's line of sight may become obstructed</li> <li>Workers should not enter the safe approach distance without first communicating with the operator</li> <li>Operators should do their best to be aware of changing site conditions</li> </ul>	10
10	Noise	<ul style="list-style-type: none"> <li>Workers exposed to high noise level must use CSA approved hearing protection</li> </ul>	5
10	Musculoskeletal Disorders	<ul style="list-style-type: none"> <li>Follow J-AAR safe work practices for manual material handling</li> <li>When possible, workers should rotate through repetitive tasks</li> </ul>	5
15	Heat Stress	<ul style="list-style-type: none"> <li>Follow J-AAR's heat stress policy</li> <li>Ensure ample cool water on site</li> <li>Take rest breaks as needed</li> </ul>	5
10	Vehicle and pedestrian traffic	<ul style="list-style-type: none"> <li>All reasonable precautions must be taken to ensure the safety of everyone effected by the work</li> </ul>	5

	Section: Safe Job Practices and Procedure – Asphalt Paving					
	Initial HIRA score		15		Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
	Description		Placing hot mix asphalt through the use of equipment/manual touch ups as required.		# OF PAGES:	5

15	Asphalt Burns	<ul style="list-style-type: none"> <li>All workplace parties involved with placing and handling of asphalt must wear long pants and shirts with sleeves</li> <li>Wear appropriate PPE (rated gloves, etc) when there is a risk of burns</li> </ul>	5
20	Lack of inspection	<ul style="list-style-type: none"> <li>A pre-use inspection must be carried out for all equipment and PPE involved in the operation. If anything is found to be defective tag it and remove it from service immediately</li> </ul>	5


## SAFE WORK PROCEDURES

### Planning

1. Ensure all workers involved in the task are competent for the work assigned to them
2. Ensure all equipment and PPE required is available
3. Inspect all equipment and PPE. If anything is found to be defective, tag it and remove from service immediately
4. Complete a job hazard assessment. Ensure all controls identified are implemented before beginning work
5. Ensure jobsite is secure and not a hazard to the public or workers

### During the task


1. Dump truck is backed into the location by a signal person
2. The hopper is loaded with asphalt by the truck
3. If a shuttle buggy or other similar piece of equipment is used, the asphalt is then loaded into the hopper of the paver
4. Asphalt is place on the work surface by the paver
5. In areas where the paver cannot reach, workers manually shovel and rake the asphalt
6. Paving must always be carried out at a pace which ensure the paving crews safety. Workers should not be hurried by the pace of the operator
7. Asphalt surface is rolled/compacted with smooth drum rollers
8. Debris is cleaned

		<b>Section: Safe Job Practices and Procedure – Asphalt Paving</b>			
		Initial HIRA score		15	Residual HIRA score
					5
		Critical Task?	No	Location(s)	Jobsites
				REVISION # 1	
Description		Placing hot mix asphalt through the use of equipment/manual touch ups as required.			# OF PAGES:
					5

### Completion

1. Ensure all equipment/tools/material are safely stored
2. Housekeeping as required



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Lock Out/Tag Out</b>					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites, maintenance at the office/plant	REVISION # 1	
		Description		Lockout and Tagout procedures for neutralizing stored energy		# OF PAGES:	4


## SAFE WORK PRACTICES

### General

- Lock out/Tag out is required when there is a mechanical or electrical hazard which can be controlled by de-energizing
- J-AAR also requires that all defective equipment be locked out until it is repaired or removed from site
- Lock out is intended to ensure that once something is deenergized, it remains that way. Lock out is intended to ensure that no one inadvertently or accidentally re-energizes something.
- Tag out is the accompanying identifying information for the worker who de-energized and the date they tagged it out
- There are six general steps to LOTO:
  - Identify all energy sources
  - Isolate or neutralize all identified
  - Verify it has been de-energized
  - Attached lockout devices and tags
  - Complete work and remove locks
  - Only re-energize once all workers have cleared

### Delinquent Locks

- In the event that a lock is left on, tags are missing, or an emergency occurs J-AAR supervision may authorize the removal of the delinquent lock
- This would only happen after the following occurs:
  - Every effort shall be made to identify and contact the lock's owner
  - The electrical authority on the jobsite will identify all components locked out and verify that no workers could be harmed by re-energizing


 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		Section: Safe Job Practices and Procedure – Lock Out/Tag Out					
		Initial HIRA score		20		Residual HIRA score	10
		Critical Task?	Yes	Location(s)	Jobsites, maintenance at the office/plant	REVISION # 1	
		Description		Lockout and Tagout procedures for neutralizing stored energy		# OF PAGES:	4

### JOB HAZARD RISK ASSESSMENT

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
20	Electrical Hazards	<ul style="list-style-type: none"> <li>Only workers who have been trained in LOTO procedures or hold a valid COQ should carry out lock out</li> </ul>	10
20	Lack of Procedure	<ul style="list-style-type: none"> <li>All components must be properly identified during the creation of a LOTO procedure</li> </ul>	10
20	Caught in/crushing hazards	<ul style="list-style-type: none"> <li>All workers working around the de-energized hazards must be accounted for at all times if they do not have a personal lock</li> <li>All components must be properly identified in the LOTO procedure</li> <li>All workers involved must be competent and trained in the LOTO procedure</li> </ul>	10


### PROCEDURE

1. The Electrical Supervisor involved in the electrical work, shall determine where isolation of electrical sources is required. The supervisor involved in the isolation of mechanical energy sources shall determine where isolation of mechanical sources is required.
2. Workers and Supervisors involved with lockout / tag out must be trained in this procedure, and their roles & responsibilities as outlined in this procedure.
3. Notify all other supervision working in the vicinity of the systems requiring electrical or mechanical isolation.
4. The Electrical and/or Mechanical Supervisor shall test and try to engage

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Lock Out/Tag Out</b>			
		Initial HIRA score		20	Residual HIRA score
					10
		Critical Task?	Yes	Location(s)	Jobsites, maintenance at the office/plant
				REVISION # 1	
		Description		Lockout and Tagout procedures for neutralizing stored energy	# OF PAGES: 4

the equipment to confirm the isolation

5. The Electrical Supervisor or Mechanical Supervisor shall tag and lock-out the disconnect device. The supervisor will maintain control using a scissor-type device (if required) or a lock box to allow for the multiple installations of locks for other trades.
6. ALL SUPERVISION of trades working on the isolated electrical or mechanical system shall ensure that each of their workers install locks and tags for their protection. If the same work continues into the next shift, the incoming crew shall follow the same procedure after the first crew has removed their locks.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Work Practices and Procedure – Quick Cut Use</b>					
		Initial HIRA score		15		Residual HIRA score	5
		Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
		Description		Safe use of quick cut saws by workers		# OF PAGES:	

## SAFE WORK PRACTICES

### General

- Do not operate a quick-cut saw without first receiving clear instructions from your supervisor. If you do not understand something, ask before beginning work
- Only trained workers can use the quick-cut saw
- Before beginning work a pre-use inspection of the saw and blade/disc must be completed. Tag and remove any defective tools/components from service immediately
- Ensure that the manufacturer's manual is available on site before operating the saw
- If using the saw in a confined space, make sure there is adequate ventilation. Quick-cut exhaust should not be allowed to build-up

### Fueling


- Quick-cut saws run on mixed fuel. Never fuel a quick-cut with straight gas or diesel
- When fueling the saw ensure that you are in a well-ventilated area and not near any sources of ignition. Ensure that the fuel cap is secured before beginning work. Sparks from the saw may act as a source of ignition

### Starting

- When starting the saw make sure the area is clear of other workers
- Start the saw on the ground with a firm grip on the handle. Lift the blade slightly off the ground. Under no circumstances should you wrap the starter cord around your hand or fingers
- Once the saw has been started make sure the engine is idling properly
- Run the saw at full throttle for a moment. Watch the blade to make sure it is correctly installed

### Operation


- Never operate a quick cut saw at or above chest height
- Kickback is most likely to occur when the top portion of the blade comes into contact with the cutting surface, only cut with the bottom of the blade.
- Never remove or modify blade guards
- When cutting, run the saw at full throttle
- Always keep two hands on the saw when cutting

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Work Practices and Procedure – Quick Cut Use</b>					
		Initial HIRA score		15		Residual HIRA score	5
		Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
		Description		Safe use of quick cut saws by workers		# OF PAGES:	

- Never try and force the blade into a cut or angle. This can cause the blade to warp and shatter. Keep the saw at a right angle to the cutting surface
- Water cooling is recommended for prolonged use. This will also limit your exposure to dust

### JOB HAZARD RISK ASSESSMENT

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
15	Lack of Training	<ul style="list-style-type: none"> <li>Specialized training is required when using a quick-cut at J-AAR sites. Ensure you are competent for the tasks assigned to you</li> </ul>	5
20	Lack of Inspection	<ul style="list-style-type: none"> <li>All components must be inspected before use. Any defective equipment should be tagged and removed from service immediately</li> </ul>	10
20	Laceration/MSD's	<ul style="list-style-type: none"> <li>Follow safe operation practices</li> <li>Consult J-AAR supervision and the manufacturer's manual if you have any questions</li> </ul>	5

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Work Practices and Procedure – Pumping and Dewatering</b>				
	Initial HIRA score		6		Residual HIRA score
	Critical Task?	No	Location(s)	Jobsites	3
					REVISION # 1

## SAFE WORK PRACTICES

### General

- It is extremely important that water is only pumped at a site if it is allowed. There are very strict Ministry of the Environment, Conservation and Parks (MECP) regulations regarding pumping and taking of water.
- There may be an MECP permit issued or an online registration completed for the taking or pumping of water. The procedures in either of them must be strictly followed.
- The supervisor is responsible to confirm:
  - o a permit is valid and present at the site if required;
  - o compliance with all items listed on the permit or registration. This may include amount of water allowed to be pumped in one day, times of day pumping is allowed, where water may be pumped to, when permit expires etc.
- If there is no permit issued or no registration completed, pumping water may not be allowed depending on the project. The supervisor must contact the project manager or management for clarification.

**Always check for proper procedures if you need to pump water.** Some issues that typically arise are:


- pumping into sewers (sanitary or storm)
- pumping offsite
- pumping more than the allowable litres per day

**PLEASE NOTE:** If water is to be pumped into a storm system, protection and/or filtering measures **MUST** be in place before entry into the storm system.


**Although protection might be provided at the outlet, it is also required before the water enters the system.**

## JOB HAZARD RISK ASSESSMENT

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
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	Section: Safe Work Practices and Procedure – Pumping and Dewatering				
	Initial HIRA score		6		Residual HIRA score
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1

9	Slip, Trip, Fall	<ul style="list-style-type: none"> <li>• Try and maintain a clear path of travel before trying to move equipment</li> <li>• Ensure housekeeping standards are maintained on site</li> </ul>	3
9	Musculoskeletal Disorders	<ul style="list-style-type: none"> <li>• Use proper lifting techniques</li> <li>• If possible, avoid repetitive motion for long stretches throughout your day</li> <li>• Stretch and flex</li> <li>• Get help from others for heavy lifts or use machinery</li> </ul>	3

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Work Practices and Procedure – Manual Material Handling</b>							
		Initial HIRA score		9			Residual HIRA score		6
		Critical Task?	No	Location(s)	Jobsites, Offices, Yard, Plant		REVISION # 1		
		Description		Lifting or maneuvering any object without the aid of equipment			# OF PAGES:		2

## SAFE WORK PRACTICES

### General

- Do not rush
- Use gloves if there is a risk of laceration or puncture
- Never handle material if using/ascending/descending a ladder
- Never put your fingers/hands into pinch points or create a potential pinch point when lifting heavy material manually
- Before lifting consider if there is a tool/equipment/safer workflow that could be done instead

### Safe Lifting Practices

- Try and keep neutral posture throughout the lift
- If possible, use equipment or an assistive device – like a dolly or pump truck – to help move the load
- Before lifting get as close to the load as possible
- Brace with your core and lift the load with your legs. Try and keep the back out of it as much as possible
- Use your feet to pivot and turn, do not twist your back
- Lower the load slowly, try and keep the back in a neutral position
- Try and keep the load balanced between both sides of the body when possible
- When lifting objects such as lumber or pipe try and balance the load on your shoulder


### External Factors

- Extra care should be given during adverse weather conditions and extreme heat and cold


## JOB HAZARD RISK ASSESSMENT

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
9	Awkward position/Poor storage		3



 <p><b>JAAR EXCAVATING</b> HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</p>	<b>Section: Safe Work Practices and Procedure – Manual Material Handling</b>						
	Initial HIRA score		9			Residual HIRA score	6
	Critical Task?	No	Location(s)	Jobsites, Offices, Yard, Plant		REVISION # 1	
	Description		Lifting or maneuvering any object without the aid of equipment			# OF PAGES:	2

		<ul style="list-style-type: none"> <li>All material and tools should be stored safely and in such a way as they do not pose a hazard to any worker</li> <li>Try and place heavier items at hip height to make lifting easier</li> </ul>	
9	Slip, Trip, Fall	<ul style="list-style-type: none"> <li>Try and maintain a clear path of travel before trying to move material</li> <li>Ensure housekeeping standards are maintained on site</li> </ul>	3
9	Musculoskeletal Disorders	<ul style="list-style-type: none"> <li>Use proper lifting techniques</li> <li>If possible, avoid repetitive motion for long stretches throughout your day</li> <li>Stretch and flex</li> <li>Get help from others for heavy lifts or use machinery</li> </ul>	3
9	Lacerations/puncture injuries	<ul style="list-style-type: none"> <li>Check load for potential sources of cuts/punctures</li> <li>Use gloves when moving material manually</li> </ul>	3

		<b>Section: Safe Job Practices and Procedure – Asphalt Milling</b>			
		Initial HIRA score		15	Residual HIRA score
					5
		Critical Task?	No	Location(s)	Jobsites
				REVISION # 1	
		Description		Milling asphalt with the use of equipment	# OF PAGES:
					4

## SAFE WORK PRACTICES

### General

- Ensure everyone working on the task understand their roles, responsibilities, and actual/potential Hazards
- Any unsafe conditions including defective equipment/PPE must be reported to J-AAR supervision immediately
- Most experienced rake person should work closest to traffic with the least experienced working in the most protected areas
- Always use the buddy system to help your crew members spot potential hazards they might not notice while working
- Always follow the manufacturer's instructions when operating equipment
- No headphones/cell phone use while paving operations are underway

### Traffic Control


- All traffic control measures must be implemented per MTO's Book 7
- All traffic control personnel must be competent

### Equipment

- Never leave equipment unattended while in operation
- Operators must signal the crew any time they resume movement after being stationary for some time
- A pre-use inspection of all equipment required for the task must be completed before work commences. If anything is found to be defective, tag it and remove it from service immediately. Notify J-AAR supervision as soon as you can.
- Keep loose clothing/hair away from the milling equipment
- Wear respiratory protection when required
- Use water to keep dust down as much as is necessary/practicable

### Night Work

- Ensure temporary lighting is adequate for the task
- Ensure lighting does not create a new hazard by aiming the light in a way which may blind oncoming traffic

		<b>Section: Safe Job Practices and Procedure – Asphalt Milling</b>			
		Initial HIRA score		15	Residual HIRA score
		Critical Task?	No	Location(s)	Jobsites
		Description	Milling asphalt with the use of equipment		# OF PAGES:
					REVISION # 1
					4

- Ensure all workers are wearing appropriate PPE for night work

### Signalers

- Required for backing vehicles
- Required if dump trucks may come near overhead lines

## **JOB HAZARD RISK ASSESSMENT**

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
15	Lack of training/communication	<ul style="list-style-type: none"> <li>All operators must be qualified/competent</li> <li>Ensure a site-specific orientation has been attended by all crew members</li> <li>Ensure JHA carried out before commencing task</li> </ul>	5
10	Housekeeping	<ul style="list-style-type: none"> <li>Keep work area clean</li> <li>Ensure material and debris is not in the path of travel</li> <li>Ensure tools/equipment are cleaned after the task</li> <li>Ensure there are not trip hazards in the path of travel</li> </ul>	5
20	Improper Chemical use	<ul style="list-style-type: none"> <li>Ensure all chemicals are labeled according to WHMIS 2015 standards</li> <li>Ensure all chemicals have corresponding MSDS'</li> <li>Ensure all chemicals are stored and transported according to the MSDS</li> <li>Ensure all required PPE for safe handling is available and used correctly when handling</li> </ul>	5
20	Struck by	<ul style="list-style-type: none"> <li>Ensure spotters are used where an operator/driver's line of sight may become obstructed</li> <li>Workers should not enter the safe approach distance without</li> </ul>	10



## Section: Safe Job Practices and Procedure – Asphalt Milling

Initial HIRA score

15

Residual  
HIRA  
score

5

Critical  
Task?

No

Location(s)

Jobsites

REVISION # 1


Description

Milling asphalt with the use of equipment

# OF  
PAGES:

4


		<ul style="list-style-type: none"> <li>first communicating with the operator</li> </ul>	
10	Noise	<ul style="list-style-type: none"> <li>Workers exposed to high noise level must use CSA approved hearing protection</li> </ul>	5
10	Musculoskeletal Disorders	<ul style="list-style-type: none"> <li>Follow J-AAR safe work practices for manual material handling</li> <li>When possible, workers should rotate through repetitive tasks</li> </ul>	5
15	Heat Stress	<ul style="list-style-type: none"> <li>Follow J-AAR's heat stress policy</li> <li>Ensure ample cool water on site</li> <li>Take rest breaks as needed</li> </ul>	5
10	Vehicle and pedestrian traffic	<ul style="list-style-type: none"> <li>All reasonable precautions must be taken to ensure the safety of everyone effected by the work</li> </ul>	5
15	Airborne Dust	<ul style="list-style-type: none"> <li>Apply water as necessary</li> <li>Workers must wear appropriate respiratory protection</li> </ul>	5
20	Lack of inspection	<ul style="list-style-type: none"> <li>A pre-use inspection must be carried out for all equipment and PPE involved in the operation. If anything is found to be defective tag it and remove it from service immediately</li> </ul>	5

		<b>Section: Safe Job Practices and Procedure – Asphalt Milling</b>			
		Initial HIRA score		15	Residual HIRA score
					5
		Critical Task?	No	Location(s)	Jobsites
				REVISION # 1	
Description		Milling asphalt with the use of equipment		# OF PAGES:	4

## SAFE WORK PROCEDURES

### Planning

1. Ensure all workers involved in the task are competent for the work assigned to them
2. Ensure all equipment and PPE required is available
3. Inspect all equipment and PPE. If anything is found to be defective, tag it and remove from service immediately
4. Complete a task specific hazard assessment. Ensure all controls identified are implemented before beginning work
5. Ensure jobsite is secure and not a hazard to the public or workers

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Underground Hazards and Locates</b>					
	Initial HIRA score		15		Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
	Description		Working around underground utilities		# OF PAGES:	7

## SAFE WORK PRACTICES


### General

- All underground utilities in the area of excavation must be located and marked prior to work commencing
- Ensure valid locates are with the operator at all times during excavation
- Ensure all workers involved understand the locates provided to them
- If you find an error or an unidentified utility STOP work immediately and notify J-AAR supervision
- While the excavation is open, utilities must be supported, protected, or removed as required to protect workers
- Workers have been subject to serious injury or death when buried utility lines are damaged by:
  - digging without locates;
  - careless excavation once the utilities have been located and marked;
  - not getting new locates when paint/flags are missing or locates expire;
  - failure to properly support exposed utilities once they have been exposed

### Locates

Before any excavation can begin, locates for services and utilities must be acquired by the operator and spotter and reviewed:

- The utility shall provide information using labeled stakes, flags, and/or highly visible paint marks continuously or at regular intervals on the surface of the ground. The markings should clearly indicate the centre line of the utility line and the limits of underground structures in the defined area of the proposed excavation.
- The utility shall also provide a diagram describing the locate information. The diagram should indicate in clear legible terms the locate information including additional clarifications, dimensions from fixed objects, orientation, and any unusual depths, if known.
- Locates must be valid, not expired and available onsite for the area of excavation. DO NOT excavate in any area without a valid locate or ground marks.
- Some areas may have other utilities that exist beyond those identified on public locates, such as existing commercial/industrial sites. Check with the owner or general contractor to see if private locates are available or needed.
- Remember that sites where temporary utilities may be installed, locate sheets may be unavailable (i.e. tower crane power supply cables). Always check with the site supervisor prior to digging to ensure your excavation location is clear.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Underground Hazards and Locates</b>					
	Initial HIRA score		15		Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
	Description		Working around underground utilities		# OF PAGES:	7


- Most locate sheets expire. Read the date information on the sheet carefully. To ensure current locates are always available, the office will request new locate sheets every 30 days to 90 days as required. Please ensure that your locates are valid. Supervisors must request new locates as needed.
- Read the locates carefully to see what utility has been located and marked.
- Flags or markings may disappear or be displaced. Where the locate markings become unclear, a new locate must be requested.
- When excavating around utilities, leave the painted/flagged locate marks in place as long as possible.
- A locate can be called in on the phone as an “emergency”, which is only appropriate when life threatening conditions exist. The locaters will respond immediately to the site and require somebody to meet them on site.
- A locate can also be called in on the phone as “priority zero” or “single ticket”. These locates cannot be renewed and are a one-time locate only. They are suitable for urgent requests for one-time work, that is NOT life threatening. These locates turn around in 1-3 days on average. A site meeting may not be required for this.
- J-AAR supervisors must ensure that the operators and labourers/signallers have current copies of the locate sheets for all the necessary services and utilities in their excavation zone, however it is also the responsibility of the operators and labourer/signallers to request copies of the locate sheets, if they have not received them.
- Copies of the current locate sheets must remain on-site at all times.

**If there is any doubt as to the location of the utility, locates that are not clear, exposed utilities not shown on the locates, or any other issue, STOP work and call the utility company for help.**

### Initial Locate Exposure Guidelines

**Please refer to Section 228 of the Construction Regulations and the “Guideline for Excavation in the Vicinity of Utility Lines” booklet from the ESA and TSSA. The guidelines give instructions for digging around and uncovering services and utilities as outlined below:**

*Boundary Limits = the volume of soil contained by vertical planes placed 1 metre each side of the centre line of the marked utility line or 1 metre on either side of the marked limits of the underground structure.*

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Underground Hazards and Locates</b>					
	Initial HIRA score		15		Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
	Description		Working around underground utilities		# OF PAGES:	7

- At no time should a machine be used to dig within the boundary limits of the locate without first hand digging test holes.
- Hand dig test holes to determine exact centre line and depth of cover.
- When the excavation is parallel and within the boundary limits of the utility, expose the utility line by hand digging a series of test holes along the entire route at regular intervals. The test hole separation shall not exceed 4.5 metres.
- Test holes may be dug by one of the following methods:
  - a) Machine may dig test holes immediately outside boundary limits and then hand dig laterally (across) until the utility is found;
  - b) A combination of hand digging and machine digging as follows;
    - Hand dig between the boundary limits in cuts of at least 0.3 metre (1 foot) in depth;
    - Machine could then be used to widen the hand dug trench to within 0.3 metre of the depth of hand digging. Repeat steps until utility is found.


#### Digging and Excavating

- Operators who are digging in the vicinity of the utility must complete the “**Pre-Dig Hazard Assessments**” as part of their daily equipment inspection. The pre-dig assessment will be reviewed by the supervisor before digging starts.
- Mechanical excavation must not be used closer than 0.3 metre (1 foot) in any direction to the utility line.
- Excavation within 0.3 metre (1 foot) in any direction of the utility line must be carried out by hand digging.
- Operators use a signaller if needed. Ask your supervisor for help. Stop if you cannot see the utility line or safely dig near it.
- Use proper support procedures for the utility line. **See Union Gas example below.**
- If the utility is in clay or heavy soils, use caution. As soil is removed, undermining, or shifting of the utility line may occur.

#### Hydro Vac Trucks


- If using a hydro vac truck onsite for any excavation, valid locates for that area must be available. Hydro Vac trucks cannot be used without valid locates.
- Once a utility has been exposed, but may be buried again, mark/flag/stake the utility so its location is clearly visible.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Underground Hazards and Locates</b>					
	Initial HIRA score		15		Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
	Description		Working around underground utilities		# OF PAGES:	7

### JOB HAZARD RISK ASSESSMENT

Initial HIRA Score	Hazards	Controls	Residual HIRA Score
15	Lack of Documentation (locates)	<ul style="list-style-type: none"> <li>Ensure valid locates are available and work is taking place within the located area</li> </ul>	5
15	Lack of Communication	<ul style="list-style-type: none"> <li>Ensure workers involved understand the locates</li> <li>Ensure labourers and operators have pre-established means of communication</li> </ul>	5
15	Lack of Training	<ul style="list-style-type: none"> <li>Ensure all equipment is operated by competent workers</li> <li>Ensure equipment inspections are carried out everyday</li> <li>Do not use mechanical excavation in locate boundaries</li> <li>Use non-intrusive methods of excavating</li> </ul>	5
15	Located utilities not marked	<ul style="list-style-type: none"> <li>Ensure locates are valid and marked</li> </ul>	5
15	Unstable or live utilities	<ul style="list-style-type: none"> <li>If a utility may pose a hazard, the service should be de-energized by an authorized person</li> <li>Ensure all underground utilities are protected, supported, or removed in order to keep workers safe</li> </ul>	10

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Underground Hazards and Locates</b>						
	Initial HIRA score		15			Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites		REVISION # 1	
	Description		Working around underground utilities			# OF PAGES:	7

## SAFE WORK PROCEDURES

### Planning

1. Ensure valid locates are on site
2. Ensure all workers involved in the task are competent for the work assigned to them
3. Ensure all equipment and PPE required is available
4. Inspect all equipment and PPE. If anything is found to be defective, tag it and remove from service immediately
5. Complete a task specific hazard assessment. Ensure all controls identified are implemented before beginning work
6. Complete a J-AAR excavation permit if required
7. Ensure jobsite is secure and not a hazard to the public.

### During the task


1. Review locates with relevant workplace parties
2. Locate centre line of utility
3. Ensure the operator has a copy of locates in the cab
4. Communicate with nearby workers/spotters
5. Support/protect/remove all utilities as required

### If un-located utilities or damaged utilities are discovered

1. Stop all related work
2. Contact J-AAR supervision immediately. They will assess and document the situation

### Completion

1. Ensure all equipment/tool/material are safely stored
2. Housekeeping as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Underground Hazards and Locates</b>						
	Initial HIRA score		15			Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites		REVISION # 1	
	Description		Working around underground utilities			# OF PAGES:	7

**Union Gas Notes:**

Prior to trenching beneath a pipeline or service, temporary support shall be erected for pipelines if the unsupported span of pipeline in the trench exceeds the length indicated in Table 12.5.1.


**Table 12.5.1: Maximum Span Without Support Beam**

Pipe Size (NPS)	Steel (m)	Plastic (m)
1/2	-	1
3/4 - 1 1/4	2.5	1.25
2	3	1.5
3-4	4.5	1.75
6	6	2
8	7	-

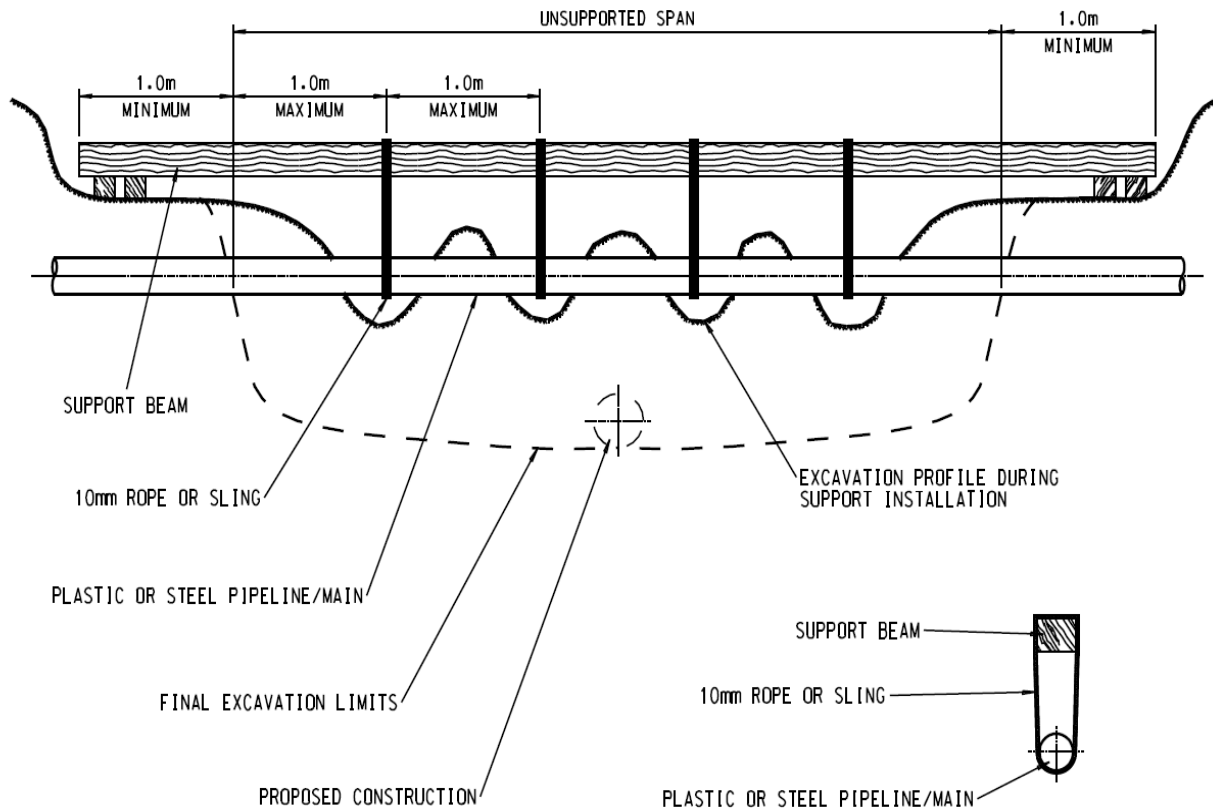
When temporary support is required, Table 12.5.2 indicates the required beam for a given span. The beam shall be a continuous length grade No. 1 Spruce-Pine-Fir (S-P-F) or equivalent (**e.g., steel I-beam**). For spans exceeding 4.5 m, contact Pipeline Engineering, Chatham Corporate for approval.


**Table 12.5.2: Support Beam Sizes**

Pipe Size (NPS)	Steel	Plastic	
	≤ 4.5 m	≤ 2 m	≤ 4.5 m
1/2 - 2	4x6	4x6	6x8
3 - 6	n/a	6x6	8x8

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Underground Hazards and Locates</b>						
	Initial HIRA score		15			Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites		REVISION # 1	
	Description		Working around underground utilities			# OF PAGES:	7

The beam shall be placed above the pipeline with the ends of the beam resting on firm undisturbed soil. The beam shall not bear directly on the gas pipeline. The pipeline shall be supported from the beam with rope or sling in a manner that will prevent damage to the pipeline and pipeline coating, and eliminate sag. The spacing between the ropes or slings shall not exceed 1.0 m (see Drawing 12.5.1 for further details).



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Vehicle Reversing/Signalling</b>						
		Initial HIRA score		15			Residual HIRA score	5
		Critical Task?	No	Location(s)	Jobsites, Yard, Plant		REVISION # 1	
		Description		Operating a vehicle or equipment in reverse			# OF PAGES:	3

## SAFE WORK PRACTICES


**Note:** This SWP is for reversing/acting as a signal person on a closed/controlled area or jobsite. This is not for live lane traffic control. Please see SWP – Traffic Control Person for information and best practices for traffic control on live lane roads.

### General

- Workers should have an escape route planned. Never put yourself in a pinch point
- Ensure you are always visible to reversing trucks/equipment
- Per the regulations: Every project shall be planned and organized so that vehicles, machines and equipment are not operated in reverse or are operated in reverse as little as possible
- Vehicles, machines and equipment at a project shall not be operated in reverse unless there is no practical alternative to doing so


### Signal Person for Equipment/Backing Vehicles on Site

- A signaler must be a competent person and receive adequate written and oral instruction from their supervisor. Before beginning work as a signal person ensure that J-AAR's 'Signal Person Instruction' form is completed and understood.
- Signalers are required when there is work near overhead electrical hazards and reversing equipment or vehicles.
- Operators of vehicles, machines and equipment shall be assisted by signalers if either of the following applies:
  - o The operator's view of the intended path of travel is obstructed.
  - o A person could be endangered by the vehicle, machine or equipment or by its load
- Must remain in clear view of the operator they are providing signals for
- A means of communication between signaler and operator should be established before work commences (hand signals, use of two-way radio, etc.)


 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Vehicle Reversing/Signalling</b>					
		Initial HIRA score		15		Residual HIRA score	5
		Critical Task?	No	Location(s)	Jobsites, Yard, Plant	REVISION # 1	
		Description		Operating a vehicle or equipment in reverse		# OF PAGES:	3

## JOB HAZARD RISK ANALYSIS

Initial HIRA Score	Traffic Control Hazards	Controls	Residual HIRA Score
20	Struck by equipment or vehicle	<ul style="list-style-type: none"> <li>Ensure signalers are used when required</li> <li>Ensure signalers are competent</li> </ul>	10
10	No/poor signaling	<ul style="list-style-type: none"> <li>Ensure signalers are used when required</li> <li>Ensure all signalers are competent individuals</li> </ul>	5
10	Lack of training	<ul style="list-style-type: none"> <li>Ensure all workers are competent for the tasks assigned</li> <li>Ensure J-AAR's Signal person instruction form is completed and understood by the worker</li> </ul>	5
8	Lack of Communication	<ul style="list-style-type: none"> <li>Persons involved in signaling should establish a means of communication before commencing work (hand signals, two-way radio, etc)</li> </ul>	4
10	Incorrect PPE/PPE not used correctly	<ul style="list-style-type: none"> <li>All workers must wear CSA Class 2 high-vis PPE</li> <li>Night-time operations require additional PPE</li> </ul>	5
10	Limited Visibility	<ul style="list-style-type: none"> <li>Signalers should be used any time a driver/operator's sightlines could become obstructed</li> <li>Additional signage/signal persons should be used as required</li> </ul>	5

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Vehicle Reversing/Signalling</b>							
		Initial HIRA score		15			Residual HIRA score	5	
		Critical Task?	No	Location(s)	Jobsites, Yard, Plant		REVISION # 1		
		Description		Operating a vehicle or equipment in reverse			# OF PAGES:	3	

8	Poor site planning	<ul style="list-style-type: none"> <li>Every project should be planned and organized so that vehicles, machines, and equipment are not to be operated in reverse, or operated in reverse as little as possible</li> </ul>	4
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 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Watermain Work</b>							
		Initial HIRA score		15			Residual HIRA score		5
		Critical Task?	No	Location(s)	Jobsites		REVISION # 1		
		Description		Installation and repair of watermains			# OF PAGES:		4

## SAFE WORK PRACTICES

The protection of municipal drinking water is obviously a top priority when working with and connecting to existing watermain structures. J-AAR employees must strictly follow all provincial and municipal regulations and procedures.

Water systems can only be operated by authorized and appropriately licensed personnel.

To be clear, employees of J-AAR or their subcontractors are not permitted to operate water valves or any other components of the drinking water system at any time. Only authorized municipal or appointed personnel may operate drinking water systems.

### **Pressurized Watermains**

**Because of the high risk and potential injury hazards related to working on live or pressurized watermains, the following policy will be strictly enforced.**

**J-AAR's policy is that NO work is allowed to be conducted on live or pressurized watermain systems unless direct approval has been given. Approval will come from Senior Management.**

**Workers must get approval from their Supervisor for any work on live watermains and Supervisors must get approval from Senior Management.**


### **General**

- Typically, watermain work requires trenching and/or work in confined spaces. General safe work practices are outlined below. Consult the relevant supplemental SWP's for more detail on the work being undertaken
- Follow all torque specs and bolt patterns in the manufacturer's instructions

### **Trenches**

- Before work begins on a trench or excavation soil type must be determined and valid locates must be obtained
- Operators who are digging in the vicinity of utilities must complete a J-AAR "Pre-Dig and Post Dig" hazard assessment
- Mechanical excavation must not be used closer than 0.3M (1') in any direction of a utility line. It must be hand dug or completed with a hydrovac




 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>		<b>Section: Safe Job Practices and Procedure – Watermain Work</b>					
		Initial HIRA score		15		Residual HIRA score	5
		Critical Task?	No	Location(s)	Jobsites	REVISION # 1	
		Description		Installation and repair of watermain		# OF PAGES:	4

- There are four soil types
  - Type 1 is hard, very dense and is only able to be penetrated manually with a small sharp object. It has low moisture content and has no signs of seepage. It can only be excavated by mechanical equipment
  - Type 2 is very stiff, dense and is difficult to penetrate manually. It has low – medium moisture content and has a damp appearance after it is excavated
  - Type 3 soil is soil that has previously been excavated; or soil that is stiff to firm or compact to loose consistency and has one or more of the following: signs of surface cracking; signs of water seepage; if it is dry, it may run easily into a well-defined conical pile; exhibits a low degree of internal strength
  - Type 4 soil is soft – very soft and very loose in consistency. It is sensitive to disturbance and runs easily or flows/is wet muddy. Type 4 soils will also exert fluid pressure on structures.
- Trench safety depends greatly on the type of soil being disturbed. Trenches not protected by and engineered shoring system or box must be dug in different ways depending on soil type (no trench can have a vertical wall greater than 1.2m unless it is made of stable rock)
- Type 1 and 2 soils may have a vertical wall of 1.2m. a 1:1 slope is required once this height is reached
- Type 3 soils must be sloped at 1:1 from the floor of the trench upwards
- Type 4 soils must be sloped at least 1:3 from the floor of the trench
- Every trench must be kept reasonably clear of water


### **Confined Spaces**

- Confined space work requires specialized training. Do not carry out this work if you are not properly trained
- Any worker required to wear fall protection equipment must be trained in its use and care. J-AAR sends all workers who are required to wear fall protection equipment to an approved Working at Heights course
- Complete J-AAR's Confined Space Entry Permit and hazard assessment. Confined space work is considered a critical task by J-AAR
- Never enter a confined space without taking the proper precautions first
- Test the atmosphere inside the space with a calibrated and bump tested gas monitor. Oxygen should be between 19.5% and 23%. If it is not, do not enter

 <b>JAAR EXCAVATING</b> HEALTH, SAFETY & ENVIRONMENTAL PROGRAM	<b>Section: Safe Job Practices and Procedure – Watermain Work</b>						
	Initial HIRA score		15			Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites		REVISION # 1	
	Description		Installation and repair of watermains			# OF PAGES:	4

- Each atmospheric test should be recorded, and time stamped on the confined space entry permit
- Ensure there are no biological or chemical agents in the space
- Purge or ventilate as required
- Continually test the air in the space
- There must be an attendant who is also trained in confined space entry/hazards at the access point the entire time work is being done
- Ensure that all workers involved are wearing the correct PPE for the task/retrieval if necessary
- Inspect all PPE/equipment involved before commencing work. If anything is found to be defective, tag it and remove it from service immediately
- If hot work will be undertaken in the space a hot work permit must be completed
- If conditions in the space become hazardous stop work immediately and exit

JOB HAZARD RISK ASSESSMENT				
	Initial HIRA Score	Hazards	Controls	Residual HIRA Score
	20	Lack of Training	<ul style="list-style-type: none"><li>Specialized training is required for entry/work in a confined space ensure workers involved are all competent before commencing work</li><li>All equipment operators should be competent</li></ul>	5
	20	Lack of Inspection	<ul style="list-style-type: none"><li>A confined space entry permit, including hazard assessment, must be completed before entry</li><li>All tools and equipment should be inspected before work commences. If anything is found to be defective, tag it and remove from service immediately</li></ul>	5
	15	Lack of communication	<ul style="list-style-type: none"><li>Ensure all workers involved understand the tasks assigned to them</li><li>Have site-specific procedures in place to ensure no worker interacts with a pressurized system</li></ul>	5

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safe Job Practices and Procedure – Watermain Work</b>						
	Initial HIRA score		15			Residual HIRA score	5
	Critical Task?	No	Location(s)	Jobsites		REVISION # 1	
	Description		Installation and repair of watermains			# OF PAGES:	4



## CONTROL OF HAZARDS

Senior management is committed to reducing risk of work-related injury, illness, psychological hazards and property damage at our sites, facilities, offices, and operations by providing resources and controlling identified hazards.

Our commitment includes using the hierarchy of controls at the source, along the path or at the worker. In the field, to minimize risks, injury, adverse health effects, damage to equipment or environment, this may look like:

- a new or different process
- a new or different tool
- new or different equipment
- new or different products
- barriers, machine guarding
- training
- work assignment based on competency and experience
- rotation of job duties
- safe work practices and job procedures
- personal protective equipment

It is our strict policy that work deemed to have critical hazards will not be conducted without planning, training, documented procedures, all required controls, and a rescue plan where required.

All areas and operations will be assessed to determine and assign control measures for all identified hazards to the lowest possible level as laid out in our Hazard Identification, Assessment, and Control procedure. Legislation, industry guidelines and manufacturers recommendations will be reviewed ensuring the highest degree of safety is achieved.

Effective work planning is vital to the health and safety of all employees. All risks will be determined by a competent person having the knowledge, training and experience required to ensure hazard controls never introduce a new risk.

Supervisors must ensure controls for all identified hazards are available, communicated, and implemented, reducing risk to the lowest level prior to work starting. It is our policy that high risk tasks will not be carried out without procedures and controls to adequately reduce risk to acceptable levels.

When accessing risk at the corporate, site and task levels, managers and supervisors will evaluate risk using a matrix to determine the likelihood of an occurrence and potential consequence in the event of an incident. This assessment will include both actual and potential hazards, ensuring controls reduce the risk to an acceptable level.

Documentation of controls will be included on the Hazard Identification and Risk Assessment (HIRA), JHA(s) safe work practices and procedures, pre-construction hazards assessments and site-specific safety plans as required by the Occupational Health & Safety Management System control procedure.

Employees carrying out particular tasks are often the most knowledgeable about hazards, conditions, circumstances, and best mitigation measures. All workers are encouraged to take an active role to identify hazard controls.

Site and project management are responsible to ensure this policy and corresponding procedure are reviewed, communicated, and implemented.

The health and safety department will assist in the development and assessment of hazard controls and act as a subject matter expert and resource to managers, supervisors and employees as required.

In alignment with our company spirit of cooperation and internal responsibility, the Joint Health and Safety Committee or Health and Safety Representative is encouraged to participate in development and assessment of hazard controls. They are invited and encouraged to make recommendation for change at any time.

Additional information on roles, responsibilities, processes and training requirements for hazard identification, risk assessment and control can be found in the Hazard Identification, Assessment and Control Procedure.

Following this policy and using prescribed controls is everyone's responsibility and you are fully expected to participate. Non-compliance of this policy will result in disciplinary action up to and including termination.

This policy will be reviewed as required and at least annually.

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Signature

February 24, 2023

Date



## CONTRACTOR PROCUREMENT, MONITORING & REVIEW POLICY

Senior management is committed to the safety of all workers at our sites and facilities. We require all contractors to share in our commitment to ensure the highest degree of worker safety, and will set out responsibilities, expectations and requirements in our Contractor Procurement, Monitoring and Review Procedure.

Resources and materials will be provided to ensure that an effective contractor prequalification, monitoring and evaluation procedure is developed, implemented and contractor performance is monitored, reviewed and evaluated at least annually. In addition, we will review and approve this policy and procedure as required.

Contractor commitment and alignment with our safety goals, commitments, philosophy and demonstration of proactive, inclusive health and safety activities is mandatory. It is our strict policy that all contractors meet prequalification requirements.

Safety performance will be monitored through observations, periodic compliance audits and post job evaluation.

For major works pre job planning including competency, communications, hazard identification and control, rescue planning, training, implementation and safe work practices, procedures and work methods is required.

The hierarchy of controls must be implemented ensuring the lowest possible risk to workers for identified hazards.

Contractors shall comply with the OHS, applicable regulations, industry standards and all requirements of our health and safety management system.

Activities must be planned to ensure the lowest risk possible, highest regard for worker and public safety, and effectively communicated prior to mobilization as required after.

In addition, contractors are required to:

- Provide appropriate orientation to workers including site specific safety and environmental plans
- Supply and use their own equipment ensuring it is within service and certification dates and in good repair
- Not carry out high risk work without approved procedures and express written permission
- Complete required permits

Managers and supervisors must, except in emergencies, only use qualified contractors. They are responsible for ensuring contractors complete required prequalification, orientation, and hazard evaluations for the scope of work. In addition, they will carry out compliance audits, observations and participate in post job performance evaluations.

Workers are required to comply with this policy and any site specific plans, report hazards and issues that arise with contractors and participate in post job or annual contractor review as required.

This policy does not apply to contractors providing service with no field exposure, escorted visitors to sites and facilities or contractors delivering materials or goods to site.

Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site. Contractors not meeting expectations will be reviewed and status changes as required.


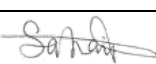
This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

A handwritten signature in black ink, appearing to read 'S. H. H.', is written over a horizontal line.

Signature

February 24, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 4: Subcontractor Management</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 4	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## SUBCONTRACTOR MANAGEMENT PROCEDURE

### PURPOSE

The purpose of this procedure is to eliminate or reduce incidents and injuries by providing a framework for procurement, monitoring and review of contractors. The pre-qualification process will help to ensure that contractors meet or exceed the requirements of the Occupational Health and Safety Act, Applicable regulations and J-AAR health, safety and environmental management systems prior to mobilization or starting work.

### DEFINITIONS

**Contractor:**

A contractor who is awarded all or a portion of a contract from the principal contractor

**Subcontractor:**

A company hired by a contractor awarded a contract to engage in construction activities excluding services having no field exposure, visitors, delivering supplies or materials

**Emergency:**

An unexpected or unforeseen time sensitive situation including but not limited to safety sensitive task carried out by specialized contractors, delayed or early critical equipment delivery, shortage of available contractors, schedule change or situation that may delay the project increasing risk of liquidated damages

**Service personnel:**

Delivery, transportation, testing or monitoring companies who are not engaged in construction activities (must be escorted by J-AAR personnel while on the job site)

**Visitor:**


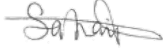
A visitor is a person who does not engage in any type of construction activity while on the jobsite. Visitors

### SCOPE

This procedure applies to all contractors and subcontractors engaged in construction activities or performing work at projects, in facilities or seeking to be added to the approved Contractor List. It does not apply to contractors or subcontractors used in emergency situations.

On multi-contractor or multi-employer sites, coordination, and integration of the OHSMS will be the responsibility the constructor or primary contractor. Contractors and subcontractors are responsible for training and communication as required.

Delivery, transportation, testing or monitoring companies who are not engaged in construction activities, providing a service with no field exposure, emergency contractors and escorted visitors are exempt from pre-qualification requirements, however they must be escorted at all times. If any of the above will be exposed to hazards in the field without a J-AAR escort, they will need to take part in J-AAR's site specific orientation.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 4: Subcontractor Management</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 4	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## SUBCONTRACTOR MANAGEMENT PROCEDURE

A list of contractors and subcontractors who meet, don't meet, or conditionally meet pre-qualification requirements who will be maintained and used to ensure work is awarded to contractors who have been approved.

### PROCEDURE

#### Prequalification Approval Process

In 2022 J-AAR celebrated its 40<sup>th</sup> Anniversary of doing business in the London area. Throughout those 40 years we have developed a listed of sub-contractors we commonly work with. Subs on this list are almost always used.

Prior to awarding work to a contractor for the first time, contractors/subcontractors will be sent a pre-qualification application to be completed and returned to J-AAR.

A review of the provided information will determine if minimum criteria has been met. Results will be communicated to the project manager, coordinator or designate. Where criteria are met, the contractor will be added to the approved Contractor List.

Contractors/subcontractors not legislatively required to have a Health & Safety, Harassment or Violence in the Workplace policies and procedures must agree to abide by J-AAR policies, practices, and procedures. A letter of agreement will be agreed to and signed. Contractors will be required to resubmit pre-qualification documentation as required to ensure compliance with this process is maintained.

#### Non-Approval

Where the minimum criteria is not met, notification will be sent to the contractor giving them an opportunity to correct deficiencies, provide additional documentation or information. The Health and Safety Team, project manager or designate may be contacted to discuss additional steps required to become qualified. Contractors will not be added to the approved Contractor List until all criteria is met.

#### Selecting a Contractor and awarding work


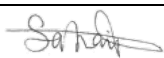
Prior to being selected, a contractor must be pre-qualified including:

- A positive questionnaire result
- Meeting 100% of all regulatory requirements prior to mobilization

Prior to work being awarded, the project manager or designate will review the Approved Contractor List to determine if the contractor has been pre-qualified and approved.

Where the contractor is on the approved Contractor List, they can be awarded the contract. A Contractor Site Safety Requirement form will be issued to the successful candidate.

#### Evaluation of Contractor submissions

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 4: Subcontractor Management</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 4
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 8	

## SUBCONTRACTOR MANAGEMENT PROCEDURE

Project Management or designate will review submissions to determine if requirements are met.

The review will include:

- The employer's health and safety and violence and harassment policies
- The employers HSMS if any
- Supervisor and worker competency and training
- Hazard identification, assessment, and control procedures
- Safety meetings, workplace, tools, and equipment inspection
- Environmental and spills and waste management program/procedures
- Return-to-work program and procedure
- Safety designations or accreditations such as COR. ISO 45001, Z 1000

### Competency

Contractors must have and maintain required competency, licensing, training, skills and experience to identify, assess and control hazards arising from the scope of work.

When a PO or contract is awarded to a subcontractor, J-AAR will send them the Subcontractor information package. This document outlines in detail everything J-AAR will require from them prior to mobilization.

All training required by the OHSA or regulations must be current and maintained.

To assist contractors with under 5 workers, or who do not have a full HSMS that meets or exceeds the requirements of J-AAR, we will provide copies of policies, safe work practices and procedures applicable to the scope of work. These policies, procedures and practices are a minimum requirement.


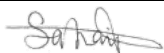
All contractors and subcontractors are responsible to review applicable policies, practices, and procedures with their workers prior to mobilizing or starting work and are required to maintain and have training records available for review.

Orientation, including safety policies, site specific safety plans, environmental plans, emergency and rescue plans, site and company rules, rights, duties and responsibilities of the workplace parties, and violence and harassment must be communicated prior to mobilization or start of work.

Failure to train workers may result in progressive discipline up to and including the contractor or contractor's workers being temporarily or permanently removed from site and removal from the pre-approved Contractor List.

Copies of records required licenses, and certificates must be maintained and available on site by the contractor and available upon request.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 4: Subcontractor Management</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 4	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## SUBCONTRACTOR MANAGEMENT PROCEDURE

### Risk Identification, Assessment and Control

Contractors are required to carry out risk assessments for planned scope of work activities.

Assessments shall include documented hazard identification, assessment of risk and control for all identified hazards. The hierarchy of controls must be applied to methods of control to ensure the lowest possible risk.

In addition, risk assessments must:

- Be completed prior to mobilization or starting work as applicable
- Be carried out on a daily basis for planned activities
- Include identified risks arising from the work to the contractors and other workers
- Include risk to the contractors' workers from other contractors scope of work
- Include hazards impacting the other work groups, visitors, and the public
- Be discussed in an open two-way communication with all affected workers
- Be communicated to other contractors or work groups where hazards affect them
- Be revised if work conditions, schedule or other changes impact the scope of work
- Be available for review

### Reassessment

Where the scope, method or timing of work changes for any reason including schedule, work conditions, weather or contractor activities not previously considered:

- 1) The hazard identification, assessment and controls must be reviewed and revised.
- 2) The competency list must be reviewed and revised.
- 3) Changes must be communicated to involved workers and J-AAR

Communication of change Contractors are responsible to assess and communicate significant changes including scope of work, schedule, working conditions, hazards and risks and controls to:

- The project manager or designate
- All involved workers
- Other work groups and contractors
- Any other person or work group impacted by the change


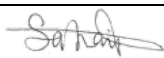
### Multi-Employer or Multi-Contractor sites

J-AAR, is responsible to:

- Lead coordination and integration of relevant to the HSMS based on scope of work
- Ensure appropriate integration and training requirements are communicated
- Carry out inspection ensuring integration is successful
- Communicate major significant hazard, tasks and safety measures required

Contractors must;

- Identify where their scope of work may impact another contractor
- Identify where another contractor's work may impact their workers.
- Coordinate and communicate with other contractors or employers on site

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 4: Subcontractor Management</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 4	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## SUBCONTRACTOR MANAGEMENT PROCEDURE

- Implement, train and communicate requirements

### Forms

Contractors are required to complete all forms and permits including but not limited to:

- Confined space entry forms
- Complex lock out tag out forms
- Hot work.
- Dewatering Permits (where required)
- Accident, incident, hazard identification and investigation forms

### Monitoring Safety Performance

Compliance audits will be carried out randomly throughout the project and specifically as deemed necessary.

Targeted compliance audits may be conducted where:

- High risk work including critical tasks have been identified
- Blitz activities where patterns of incidents or noncompliance are apparent
- Randomly or otherwise deemed appropriate
- Part of the regular supervisors, JHSC, safety rep or management inspection protocol

Audits used to evaluate contractor compliance may include but are not limited to:

- Meeting requirements of the OHSA, and applicable regulations
- Compliance with safety plans, policies, procedures, and hazard assessments
- Communications protocol and regulatory requirements
- Supervision requirements
- Training and communication requirements
- Supervisors, Safety rep and JHSC inspections
- Housekeeping and environmental requirements

### Noncompliance with Requirements

Contractors not complying with requirements of this policy or who fail to implement corrective and preventive actions after a compliance audit will:



- Be required to make the changes to comply immediately or as agreed
- Be subject to progressive discipline up to and including temporary or permanent removal from site.

In addition, contractors may be placed on a DO NOT USE list until satisfying HSMS requirement prior to being reconsidered.

### Evaluation and Reassessment

Contractors will be periodically re-evaluated and may be required to re-qualify as the result of accident, incident or noncompliance with OHSMS requirements as determined by the safety department, project manager or designate.

Post project evaluations will include:

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 4: Subcontractor Management</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 4	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## SUBCONTRACTOR MANAGEMENT PROCEDURE

- Review contractor overall safety performance and compliance
- Accidents, incidents, and hazard experience
- Proactive hazard reports
- Job safety plans including daily safety plans
- Communications, orientation and training
- Implementation of safe work practices, procedures
- Tools and equipment
- Determining corrective actions or improvements required where necessary
- Determining status including removal or remaining on the approved Contractor List

### RESPONSIBILITIES

#### Senior Management


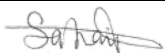
- Provide resources and commitment to the pre-qualification process
- Support the use of qualified contractors
- Provide feedback and recommendation with regard to this policy
- Review this procedure periodically as required

#### Project Managers/Site-Supervisors

- Provide feedback and recommendation to senior management and the Health and Safety Team
- Lead post job, situational or annual reviews as required
- Review the approved list when seeking pricing and tendering
- Select contractors from the approved contractor list or request a pre-qualification package be sent to the potential contractor
- Ensure pre-qualification or request an information package be sent
- Review this procedure with contractors and the JHSC as required
- Ensure all documentation is complete and submitted to the Health and Safety Team
- Forward pre-qualification packages to the Health and Safety Team for review and approval
- Issue the contractor site requirements form with the contract
- Monitor and report on contractor performance
- Arrange meetings to discuss performance issues with contractors
- Carry out periodic inspections

#### Supervisors

- Provide feedback and recommendation to senior management and Health and Safety Team
- Ensure pre-qualification package is submitted or requested as required
- Ensure contractors are approved prior to signing a contract
- Monitor and report on contractor performance
- Carry out compliance audits
- Participate in contractor post job and annual review as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 4: Subcontractor Management</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 4	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## SUBCONTRACTOR MANAGEMENT PROCEDURE

### Workers

- Provide feedback and recommendation with regard to this policy
- Participate in contractor review as required
- Report hazards and difficulty with contractors or subcontractors]
- Provide feedback and recommendation to senior management and Health and Safety Team

### Health and Safety Team


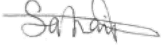
- Provide feedback and recommendation to senior management and Health and Safety Team
- Review and communicate this procedure in consultation with the JHSC
- Send out pre-qualification package to potential contractors
- Assist contractors to understand requirements of the pre-qualification process
- Log progress of pre-qualification packages and follow up as required
- Review returned documentation and approve or reject the submission
- Upon approval, add the contractor to the approved Contractor List
- Maintain an approved Contractor List and send out updates as required
- Participate in annual and post job contractor reviews as required

### Health and Safety Committee/Rep

- Provide feedback and recommendation with regard to this procedure
- Review this procedure periodically as required
- Assist managers or supervisors with compliance audits as required

### Contractors

- Carry out daily and weekly safety meetings (mandatory for all staff)
- Participate in reviews and audits
- Ensure orientation and training is carried out prior to workers engaging in any work
- Prequalify sub-contractors to ensure regulatory and program requirements are met
- Maintain prequalification, training, and equipment records on site
- Communicate changes to scope, schedule, or previously unidentified hazards
- Investigate all incidents, accidents, and hazard reports
- Report accidents, injuries including corrective/preventive actions within 24 hours
- Carry out and communicate project and daily safety assessments
- Inspect all tools and equipment prior to starting work
- Attend and participate in on site safety meetings
- Provide a worker health and safety representative
- Maintain compliance with OHSA, regulations and HSMS requirements
- Communicate changes to scope of work, schedule, hazard or controls

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 4: Subcontractor Management</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 4	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## SUBCONTRACTOR MANAGEMENT PROCEDURE

### Visitors, delivery, and service personnel

- Are exempt from the prequalification requirements
- Immediately report to the site trailer, office or applicable manager
- Must be escorted at all times

### REVIEW


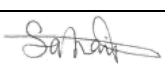
This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### DOCUMENT AND RECORD CONTROL

All documents and records generated as part of this procedure will be stored on HCSS/J-AAR's servers indefinitely. Any hard copies generated will be stored at J-AAR's head office for two years after project completion.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 5: Personal Protective Equipment: Respiratory Protection</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 6, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 2	

## RESPIRATORY PROTECTION SELECTION

**Note:** In 2014 J-AAR Excavating hired an occupational hygienist to conduct an air and noise sampling study across several positions in the company. The following procedure is based on exposure levels found in this study. Relevant information will be quoted as needed, the study in its entirety is available if required for reference.

### PURPOSE

The purpose of this procedure is to identify the specific requirements for the selection, use, and requirement for respiratory protective equipment.

J-AAR acknowledges that there is a hierarchy of controls and will protect our workers from workplace hazards using the control strategies in order of: Elimination, Substitution, Engineering, Administrative, PPE.

The first control against dust related hazards is to use water as a suppressant. Where this is not practicable this procedure is to help supervisors and workers select the right PPE as a last line of defense.

### GUIDELINES


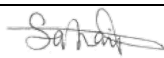
During the hygiene study the largest exposure to total respirable particulate (including silica quartz) were found in a top worker who had spent the last 40 minutes of their shift continuously cutting into a concrete culvert. The time weighted average for the top worker was 0.8 mg/m<sup>3</sup>. Current TWA Ontario guidelines are determined to be 0.1 mg/m<sup>3</sup>. At the time this worker was wearing a disposable N95 respirator (N95), which the hygienist determined to be adequate protection for the duration of the cut. She advised that if workers were to be dry cutting concrete for an extended period of their shift than a fit-tested full-face respirator be used. Based on her findings, MOL guidelines, and other Canadian sand and gravel best practices, J-AAR has determined PPE selection as follows:

#### Disposable N95:

- Suggested if you are close to a cut when applying water or if you are working within 25m of extended dry cutting or concrete grinding work
- Required at a minimum when dry cutting or chipping for short durations
- Short durations are considered to be:
  - Cumulative time throughout a shift no greater than two hours
  - Each cutting and chipping task is no greater than 30 minutes in duration

#### Fit Tested Half-Mask with P100 Filter:

- Required when water is not used as a suppressant and:
  - Cutting, Chipping, or Grinding is taking place outside of a confined space;
  - Cumulative time throughout a shift is expected to be greater than two hours and less than six hours per shift; and
  - Each task is no greater than two hours in duration.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 5: Personal Protective Equipment: Respiratory Protection</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 6, 3	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 2	

## RESPIRATORY PROTECTION SELECTION

### Fit Tested Full-Face Respirator with P100 Filter:

- Full-face respirators with P100 filters are the only respiratory protection to be used when cutting or grinding concrete in a confined space
- They are additionally required when:
  - Cumulative time throughout a shift is expected to exceed six hours
  - Each task is expected to be greater than two hours
  - There is an increased risk of eye injury due to excessive debris.



## COMMUNICATION POLICY

J-AAR Excavating believes that communication is a foundation of respect between a company and its employees. As such J-AAR strives to keep a steady flow of communication through all employees in the company. This will help us maintain safe, healthy work environments by giving senior management further insight into what is going on at field level, as well as ensuring that field level staff are up to date of all changes being made to the Health and Safety Policies at J-AAR.

J-AAR will always be open to new form of communication. For the time being we have adopted several ways of internal communication including weekly management meetings; weekly toolbox talks; new worker orientations, daily JHA's/safety meetings.

J-AAR holds an annual organization-wide meeting with all employees to update them on our health and safety performance, trends, goals, and training requirements. This also acts as a yearly refresher course for the updated OHSMS as well as WHMIS.

Senior Management welcomes input from workers. J-AAR has instituted the use of employee observations through the HCSS app. This allows employees to report both good and bad events on jobsites as they happen.

Efforts are always made to ensure that there are no barriers of communication. We will always deliver communication in a manner that considers the ability, language skills, and literacy capabilities of all parties involved.


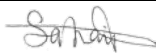
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Signature

February 24, 2023

Date



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.2: Communication Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## COMMUNICATION PROCEDURE

### PURPOSE

The purpose of this procedure is to ensure that open channels of communication exist across J-AAR. This will allow for our OHSMS and company policies to be reviewed and maintained under consultation and cooperation with our workers and will allow Senior management to ensure workers are abreast of our most recent/relevant SWP's, policies, HIRA's, health and safety goals.

### DEFINITIONS

#### Job Hazard Analysis:

A documented hazard and control assessment completed at the time and place of a specific task or job.

#### Daily Safety Meeting:

An active discussion between supervisors and relevant workplace parties where job safety information including scope of work, hazards, JHA, and other safety information is communicated.

### SCOPE

This procedure applies to all employees of J-AAR in both and up and downstream directions. Ongoing Communication is an essential part of any functional internal responsibility system.

J-AAR has implemented several different ways of internal communication including:

- Weekly toolbox talks
- HCSS Observations
- Daily safety meetings
- Joint Health and Safety Committee Meetings
- Management Meetings
- Annual company wide meetings including all employees
- Company orientations
- Site specific orientations

The procedures for each can be found below.


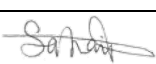
### PROCEDURE

#### Weekly Toolbox Talk:

J-AAR supervisors will conduct a weekly toolbox talk on each project. The toolbox talk will be prepared by J-AAR health and safety taking into account recent trends, changes to policy, or industry news. Toolbox talks are uploaded, assigned, and scheduled through HCSS Safety. Supervisors must communicate the weekly topic to all workers in their crew that day and complete the corresponding. These records are reviewed by J-AAR management to ensure compliance with the policy.

#### Daily Safety Meeting:

Daily Safety Meetings are to be held on site at the start of every shift. They consist of an active discussion between supervisors, employees, and visitors where job safety information including scope of work, hazards, JHA and other

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.2: Communication Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## COMMUNICATION PROCEDURE

safety information is communicated. This is also a time where any concern may be brought to supervision from workers. On top of these daily meetings. These forms will be reviewed by supervision and health and safety as they come in.

During the daily safety meeting any critical tasks being undertaken that day will be flagged. The HIRA and Safe Work Procedures will be reviewed with the crew.

### HCSS Observations:

HCSS Observation gives field staff the ability to report both positive and items/actions to management as they happen. This is accessed through their HCSS Field app. They can leave a note and a picture whenever they see something they feel should be noted and communicated to management. J-AAR Health and Safety receives all Observations and responds to them accordingly.

### JHSC Meetings

Representatives from both workers and management will attend quarterly JHSC meetings. These meetings allow workers and management to communicate face to face about health and safety issues including changes to policies, procedures, and programs; Recent inspections; accidents and incidents; and any other topics that may come up. All of the meeting minutes will be recorded and stored by J-AAR Health and Safety

### Health and Safety Team Meetings

J-AAR has weekly safety team meetings. During these meetings any workplace incidents, negative inspections, relevant statistics, and leading/lagging indicators will be reviewed. This is also a time where – if it is deemed necessary – policies and procedures in the OHSMS can be reviewed.

### Annual Company Wide Meeting


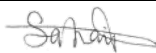
J-AAR conducts an annual organization-wide meeting with all employees to update them on our health and safety performance, changes to relevant legislation, trends, goals (and if the previous years goals were met), lessons learned throughout the year, and training requirements. This also acts as a yearly refresher course for the updated OHSMS as well as WHMIS.

### New Employee Company Orientation

Before they begin work all new hires will undergo a company orientation. These will either be administered in person or online with an in person follow up shortly after. At this time all ROT's will be verified and company specific training will be administered. The orientation will consist of a complete review of the J-AAR OHSMS, SWP's, as well as company policies and procedures. At the end of the orientation there will be a knowledge verification quiz. All the records of orientation will be collected the J-AAR health and safety and stored on the company servers.

### Site Specific Orientation

Before they begin work on any J-AAR jobsite workers will take part in a site-specific orientation. This is a time where the supervisor will communicate any site-specific rules/hazards to the worker as well as verify they have ROT's for

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.2: Communication Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## COMMUNICATION PROCEDURE

required work on the job site. Records of these orientations will be collected by J-AAR health and safety and stored on the company servers.

### RESPONSIBILITIES

#### Senior Management

- Approve the OHSMS
- Approve the company orientation package
- Ensure an annual meeting is held annually with all employees
- Participate in the annual company wide meeting
- Ensure all employees receive sufficient training to carry out their work safely
- Attend JHSC meetings as required
- Participate in management meetings
- Participate in the annual company wide meeting

#### Supervisors

- Ensure required documentation is completed and submitted at the required intervals
- Ensure all workers receive site-specific orientations
- Allow and respond to workers questions
- Conduct daily safety meetings and weekly toolbox talks
- Participate in the annual company wide meeting

#### Workers


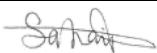
- Participate in the orientation/refresher process
- Participate in the annual company wide meeting
- Inform your supervisor if you do not have questions about tasks assigned to you
- Participate in daily safety meetings and weekly toolbox talks
- Work in accordance with instruction tools and protective devices provided
- Report any changing conditions or hazards that arise during task completion
- Ask for clarification if unclear about information provided or task assigned

#### Health and Safety Team

- Develop company orientations and packages
- Collect and maintain all documentation required
- Coordinate all communications for the annual company wide meeting
- Create and distribute tool box talks
- Receive, document, and respond accordingly to all internal communications as required

#### Health and Safety Committee/Rep

- Review policies and procedures as required
- Participate in training as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.2: Communication Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## COMMUNICATION PROCEDURE

- Provide recommendation for change

### Subcontractors

- Review policies and procedures as required

### Visitors

- Review policies and procedures as required



## REQUIREMENTS

### Documentation

- Corporate Hazard Identification and Risk Assessment Matrix
- Site Specific Safety plan
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Incident reports

### Training

- WHMIS (to be refreshed with company specific hazards annually)
- Worker's awareness in four or five steps depending on role
- Complete review of company policies, procedures, OHSMS, and Violence and Harassment policies
- Traffic control
- First-aid/CPR
- Health and Safety Rep
- JHSC Certification
- Ground Disturbance
- Construction Legislation
- Hoisting and Rigging
- Confined Space
- Working at Heights
- Propane in Construction
- Utility Safety Awareness
- Transportation of Dangerous goods
- Any specific equipment operation
- Driver Train the Trainer
- Quick-Cut saw use

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.2: Communication Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## COMMUNICATION PROCEDURE

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### DOCUMENT CONTROL

All records generated for this procedure will be stored on the HCSS servers indefinitely.



## TRAINING POLICY

Senior Management at J-AAR Excavating believes that proper training will not only lead to safer, but more productive work environments. J-AAR will never ask a worker to carry out a task they are not fully comfortable and competent in.

Training requirements will be determined by Senior Management, in conjunction with the J-AAR health and safety team as well as all relevant legislation. J-AAR will ensure that all training is carried out by competent – and where required – approved trainer.

J-AAR will also train all employees and subcontractors on our Occupational Health and Safety Management System. Training will include rights, roles, and responsibilities; required training; the purpose of the OHSMS; importance of conformity; potential consequences for deviations or noncompliance; and the importance of the workers participation within J-AAR's Internal responsibility system.


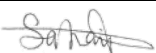
Training will be conducted considering different levels of responsibility, abilities, language barriers, and literacy. J-AAR's in-house training will have comprehension tested through a series of knowledge verification quizzes.

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Signature

February 24, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 6.3: Training Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## TRAINING PROCEDURE

### PURPOSE

The purpose of this procedure is to ensure that all employees of J-AAR Excavating are sufficiently trained and competent for the tasks assigned to them.

This includes all company specific standards, rules, and procedures.

### DEFINITIONS

#### Competency:

Capable to apply or use related knowledge, training, experience, skills, and abilities required to successfully perform risk analysis as set out in the OHSMS as it applies to a job, task, operation or function in a defined work setting.

#### JHA:

A documented hazard, risk, and control assessment completed at the time and place of specific task or job.

#### Daily Safety Meeting:

An active discussion between supervisors, employees, and visitors where job safety information including scope of work, hazards, JHA and other safety information is communicated

#### Workplace/Site Specific Safety Plan:

A formal safety plan specific to a workplace, project or job documenting known hazards and required controls associated with the scope of work.


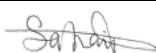
### SCOPE

This procedure applies to all employees of J-AAR. While training needs differ depending on the individual's role and responsibilities being a well-trained and competent company benefits everyone.

In addition to task specific training J-AAR also conducts new employee orientation as well as a yearly refresher for all employees. This orientation provides every employee with important information about the company's OHSMS including its purpose, roles within the company, the responsibilities of employees, rights of workers, importance of conformity across the company, potential consequences for non-compliance, and the importance of workers' participation within the OHSMS.

#### Training Needs Analysis:

The J-AAR health and safety team will review relevant legislation, recent incidents (number of like incidents, severity, etc.), leading indicators, and company health and safety goals to determine new training standards. This review will happen at least annually, but some factors – such as frequent lost time/severe incidents – can cause a more sudden change to the training standards. During this analysis recommendations for what training is required before starting work with the company, and what training is required before performing a specific task will be made.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 6.3: Training Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## TRAINING PROCEDURE

Currently J-AAR requires the following training before beginning work with the company:

- WHMIS (to be refreshed with company specific hazards annually)
- Worker's awareness in four or five steps depending on role
- Complete review of company policies, procedures, OHSMS, and Violence and Harassment policies (Company Orientation)



All Supervisors are required to have Supervisor's Awareness in five steps training as required by legislation. They may also be trained in:

- Basics of Supervision
- Other task specific training

Workers must attend health and safety courses and training programs. Although some training may be mandatory, other training may depend on their position and duties. All training records will be kept at the main office. Courses are scheduled from time to time by the Health and Safety Team in consultation with management. Some may be in virtual or digital format. Topics covered include a list of tasks which require training before commencing:

- Traffic control
- First-aid/CPR
- Health and Safety Rep
- JHSC Certification
- Ground Disturbance
- Construction Legislation
- Hoisting and Rigging
- Confined Space
- Working at Heights
- Propane in Construction
- Utility Safety Awareness
- Transportation of Dangerous goods
- Any specific equipment operation
- Driver Train the Trainer
- Quick-cut saw use



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 6.3: Training Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## TRAINING PROCEDURE

### Training Records Matrix

All orientation records, proof of comprehension quizzes, and records of training, along with expiry dates will be stored in HCSS skills. This matrix flags both expired and soon to be expired ROT's. This will allow the health and safety team to schedule any required training courses for workers as necessary.

### Training Providers

All inhouse training will be conducted by competent individuals. Required 3<sup>rd</sup> party training will all be done by CPO approved providers where required. Typically, J-AAR field staff are provided training by their respective union halls.

### Orientation

All new employees will be given a J-AAR company orientation either online – with an in-person follow up – or at the head office. This orientation will include a complete review of all J-AAR company policies, procedures, OHSMS, WHMIS/GHS, Workers awareness, J-AAR company expectations. At the end of the orientation the new employee will have to complete several knowledge verification quizzes.

There will be an annual meeting for all workers returning to J-AAR operations. This meeting is designed to be a general reminder of the company's health and safety requirements and individual responsibilities of all parties. Additions or revisions to the HSE Program will be detailed along with any other topics that are deemed to be important for review.

### New or Young Workers

New or young workers according to Safe At Work Ontario are "under the age of 25. 'New workers' can be of any age who are on the job for less than six months or who are assigned to a new job."

These workers need extra attention and training as they are most prone to workplace hazards. J-AAR supervision will ensure that all new workers are constantly supervised and never asked to work alone or outside their skillset. J-AAR supervision will determine when a worker is no longer required to be under constant supervision.

## PROCEDURE

### Review:



J-AAR's Health and Safety Team will review relevant legislation, leading and lagging indicators, and corporate health and safety goals to determine any new training requirements.

### Update:

J-AAR's Health and Safety Team will update training requirements as required based on review.

### Schedule:

J-AAR's Health and Safety Team will schedule training for staff as required.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 6.3: Training Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## TRAINING PROCEDURE

### Record:

J-AAR's Health and Safety Team will update the training matrix on HCSS as new ROT's become available.

### Refresh:

J-AAR's Health and Safety Team will provide an annual refresher for all workers.

As training beings to expire, new training will be arranged as needed.

## RESPONSIBILITIES

### Senior Management

- Ensure all employees receive appropriate training
- Review health and safety recommendations for new training initiatives
- Assist in scheduling training
- Ensure there is a site-specific orientation available at all your sites

### Supervisors

- Ensure no worker is assigned a task they are not properly trained for
- Ensure all workers receive a site-specific orientation

### Workers

- Participate in the orientation/refresher process
- Attend training as required
- Inform your supervisor if you do not have training for a required task
- Work in accordance with instruction tools and protective devices provided
- Report any changing conditions or hazards that arise during task completion
- Ask for clarification if unclear about information provided or task assigned

### Health and Safety Team



- Identify gaps in competencies given J-AAR's scope of work
- Schedule required training with workers
- Maintain ROT's and orientation records
- Assist in developing the corporate training standards
- Assist in conducting orientations/refreshers

### Health and Safety Committee/Rep

- Review policies and procedures as required
- Participate in training as required
- Provide recommendation for change

### Subcontractors

- Review policies and procedures as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 6.3: Training Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## TRAINING PROCEDURE

### Visitors

- Review policies and procedures as required

## REQUIREMENTS

### Documentation

- Corporate Hazard Identification and Risk Assessment Matrix
- Site Specific Safety plan
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Incident reports

### Training



- WHMIS (to be refreshed with company specific hazards annually)
- Worker's awareness in four or five steps depending on role
- Complete review of company policies, procedures, OHSMS, and Violence and Harassment policies
- Traffic control
- First-aid/CPR
- Health and Safety Rep
- JHSC Certification
- Ground Disturbance
- Construction Legislation
- Hoisting and Rigging
- Confined Space
- Working at Heights
- Propane in Construction
- Utility Safety Awareness
- Transportation of Dangerous goods
- Any specific equipment operation
- Driver Train the Trainer
- Quick-Cut saw use

## ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

## REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 6.3: Training Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 8	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## TRAINING PROCEDURE

### DOCUMENT CONTROL

All records generated for this procedure will be stored on the HCSS servers indefinitely.



## INSPECTIONS POLICY

In our commitment to providing safe, health work environments to all workers, as well as working in compliance with the Act and all applicable regulations, J-AAR has created a comprehensive workplace inspections policy. Workplace inspections are carried out to identify hazards before an incident has occurred.

J-AAR will carryout inspections on all jobsites, office buildings, plants, and yards where work is being undertaken. All J-AAR tools, equipment, PPE, and vehicles are also subject to this policy and to daily pre-use inspections. All completed inspections will be signed by the site supervisor and collected, reviewed, and stored by J-AAR health and safety and distributed to the relevant workplace parties including senior management as necessary. All J-AAR employees will have access to recent inspections through HCSS apps.

J-AAR will ensure that all inspection forms and reports meet the legislated requirements, applicable standards and guidelines as well as the manufacturer's recommendations.


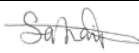
All J-AAR employees are also encouraged to use the observations feature of HCSS as well as formal inspections. This feature allows for anonymous reporting of both positive and negative workplace situations.

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Signature

February 24, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 7.1: Workplace Inspections Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## WORKPLACE INSPECTION PROCEDURE

### PURPOSE

The purpose of this procedure is to provide the framework and expectations J-AAR has for workplace inspections. Inspections will be carried out in accordance with the *Occupational Health and Safety Act*, all applicable regulations including 1101, and in accordance with manufacturer's recommendations.

### SCOPE

Regularly conducted workplace inspections help prevent workplace incidents by identifying hazards before incidents can occur. Regular inspections also help ensure compliance with the Act and Regs.

All J-AAR places of business as well as all PPE, equipment, tools, and vehicles must undergo regular inspections.

J-AAR Health and Safety reviews all failed inspections on at least a weekly basis to ensure compliance and to deal with any issues regarding follow up on an as needed basis. Follow up items are brought to management's attention at the weekly meeting and senior management is briefed as required.

### PROCEDURE

#### **Supervisor Weekly Inspection:**

J-AAR supervisors will conduct a weekly jobsite inspection using the form titled, 'Supervisor Weekly Project Inspection' on HCSS. All forms must be completed in full and e-signed by the supervisor. Completed inspections are then reviewed by J-AAR health and safety for items requiring follow up.

#### **Health and Safety Rep/JHSC Monthly Inspection**

Project Safety Reps and JHSC members will conduct a Monthly jobsite inspection using the form titled, 'Monthly Project Safety Inspection' on HCSS. All forms must be completed in full and e-signed by the supervisor. Completed inspections are then reviewed by J-AAR health and safety for items requiring follow up.

#### **Supervisor Weekly Inspection**



J-AAR supervisors will conduct a weekly jobsite inspection using the form titled, 'Supervisor Weekly Project Inspection' on HCSS. All forms must be completed in full and e-signed by the supervisor. Completed inspections are then reviewed by J-AAR health and safety for items requiring follow up.

#### **Monthly Inspection Asphalt Plant**

J-AAR Health and Safety along will conduct a monthly inspection of the Asphalt plant using the form "Asphalt Plant Inspection" on HCSS safety.

#### **JHSC/Worker Rep Office Inspection**

Project Safety Reps and JHSC members will conduct a Monthly inspection using the form titled, 'Monthly Project Safety Inspection' on HCSS. All forms must be completed in full and e-signed by the supervisor. Completed inspections are then reviewed by J-AAR health and safety for items requiring follow up.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 7.1: Workplace Inspections Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## WORKPLACE INSPECTION PROCEDURE

### Pedestrian Traffic Inspection

J-AAR's supervisor is to complete the pedestrian traffic inspection daily when pedestrian traffic is impeded by the work being completed

### Daily Traffic Control Inspection

J-AAR's supervisor is to complete the daily traffic control inspection daily when Traffic control is implemented traffic

### Safety Field Visit Report

J-AAR health and safety will perform field visit inspections periodically on all J-AAR jobsites.

## RESPONSIBILITIES

### Senior Management

- Review and approve this procedure as required
- Comply with all requirements of the Act and Regs
- Ensure your assigned projects are completing the required inspections appropriately
- Comply with all requires of the Act and Regs

### Supervisors

- Ensure all workers under their supervision complete any required inspections as necessary
- Comply with all requirements under the act and regulations

### Workers

- Complete any required inspections
- Report any unsafe conditions to your supervisor

### Health and Safety Team

- Collect and store inspections
- Flag and follow up with items found in inspections as required
- Work with managers to ensure compliance with inspection

### Health and Safety Committee/Rep


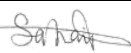
- Review policies and procedures as required

### Subcontractors

- Review policies and procedures as required

### Visitors

- Review policies and procedures as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 7.1: Workplace Inspections Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## WORKPLACE INSPECTION PROCEDURE

### REQUIREMENTS

#### Documentation

- Corporate Hazard Identification and Risk Assessment Matrix
- Site Specific Safety plan
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Inspection forms as required

#### Training

- Complete review of company policies, procedures, OHSMS, and Violence and Harassment policies
- Construction legislation
- Equipment specific training
- Working at heights
- Health and Safety Rep
- JHSC Cert

### ENFORCEMENT


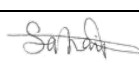
Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### DOCUMENT AND RECORD CONTROL

As part of J-AAR's document and record control policies, all forms must be completed in full and e-signed by the supervisor. Completed inspections are then reviewed by J-AAR health and safety for items requiring follow up.

All documents and records generated for this procedure will be stored indefinitely on HCSS' servers



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 7.2: Equipment, Vehicle, and Tool Inspection Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## EQUIPMENT, VEHICLE, AND TOOL INSPECTION PROCEDURE

### PURPOSE

The purpose of this procedure is to provide the framework and expectations J-AAR has for inspections of all equipment, CVOR vehicles, and tools on J-AAR jobs. Inspections will be carried out in accordance with the Occupational Health and Safety Act, all applicable regulations including 1101, the Highway Traffic Act, and in accordance with manufacturer's recommendations.

### SCOPE

Daily and pre-use inspections of vehicles, tools, and equipment helps keep everyone in the company and the public safe. It also keeps J-AAR in compliance with all Acts and Regulations.

All J-AAR places of business as well as all PPE, equipment, tools, and vehicles must undergo regular inspections. J-AAR Health and Safety reviews all inspections on at least a weekly basis to ensure compliance and to deal with any issues regarding follow up on an as needed basis. Follow up items are brought to management's attention at the weekly meeting and senior management is briefed as required.

Any defective equipment must be tagged and removed from service immediately. HCSS inspections for equipment go straight to the AAROC Equipment repair facility as well as health and safety.

### PROCEDURE

#### **CVOR Vehicles:**

All drivers are to complete MTO approved pre-use inspections of all CVOR vehicles and any attached trailers.

#### **J-AAR Equipment:**

All operators must complete the respective equipment inspection form on HCSS before use every shift.

#### **First Aid Kits:**

All first aid Kits on site must be inspected at least monthly. Kits must be in compliance with Reg. 1101 for the number of workers on site.

#### **Fire Extinguishers**

All fire extinguishers must be inspected at least monthly by a competent worker


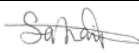
#### **WAH Equipment**

All WAH equipment must be inspected before each use. SRL's must be sent for revalidation according to manufacturer's recommendations

#### **Misc. Equipment**

Equipment such as plate tampers, pumps, mixers, etc. Is to be informally inspected before each use. All equipment must be formally inspected and documented as per manufacturer's instructions.

All small tools/equipment will be annually inspected by J-AAR's Yard Supervisor.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 7.2: Equipment, Vehicle, and Tool Inspection Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## EQUIPMENT, VEHICLE, AND TOOL INSPECTION PROCEDURE

### RESPONSIBILITIES

#### Senior Management

- Review and approve this procedure as required
- Comply with all requirements of the Act and Regs
- Ensure projects are completing the required inspections appropriately
- Comply with all requires of the Act and Regs

#### Supervisors

- Ensure all workers under their supervision complete any required inspections as necessary
- Comply with all requirements under the act and regulations

#### Workers

- Complete any required inspections
- Report any unsafe conditions to your supervisor

#### Health and Safety Team

- Collect and store inspections
- Flag and follow up with items found in inspections as required
- Work with managers to ensure compliance with inspection

#### Health and Safety Committee/Rep

- Review policies and procedures as required

#### Subcontractors

- Review policies and procedures as required

#### Visitors



- Review policies and procedures as required

### REQUIREMENTS

#### Documentation

- Corporate Hazard Identification and Risk Assessment Matrix
- Site Specific Safety plan
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Inspection forms as required

#### Training

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 7.2: Equipment, Vehicle, and Tool Inspection Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 3	

## EQUIPMENT, VEHICLE, AND TOOL INSPECTION PROCEDURE

- Complete review of company policies, procedures, OHSMS, and Violence and Harassment policies
- Construction legislation
- Equipment specific training
- Working at heights
- Health and Safety Rep
- JHSC Cert

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### DOCUMENT AND RECORD CONTROL

As part of J-AAR's document and record control policies, all forms must be completed in full and e-signed by the supervisor. Completed inspections are then reviewed by J-AAR health and safety for items requiring follow up.

All documents and records generated for this procedure will be stored indefinitely on HCSS' servers



## EMERGENCY PREPAREDNESS POLICY

Senior management are unwavering in our commitment to eliminating and reducing occupational illness and injury and reducing potential suffering and loss by ensuring all workplace parties are equipped with necessary and sufficient response plans to all foreseeable circumstances. J-AAR will assess the scope of work across all of our places of business, and all relevant legislation to ensure that we have emergency plans and rescue equipment available. All rescue equipment will be inspected and maintained per manufacturer's instructions and marked and located as required by the act and regs.

All emergency response plans will be documented and communicated in a way that all workplace parties can understand. On jobs where J-AAR is the constructor all workplace parties will be given written copies of relevant plans and J-AAR will conduct drills involving everyone on site as required.

All employees will be trained in relevant response plans and the responsibilities of all workplace parties as well as each employees duties during an emergency response. Employees who are members of site-specific emergency response teams will under-go task-specific training to ensure they are competent. All employees will take part in emergency drills as required to ensure full comprehension of J-AAR's emergency plans and procedures.


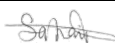
If all workplace parties understand their role and responsibilities in J-AAR emergency planning than the prevention or minimization of injury, illness, and property damage should be easy to achieve. Senior management will review and assess all emergency plans on an as needed basis – at least annually – to ensure that they are up to date and cover all of our areas of business.

A handwritten signature in black ink, appearing to read 'S. H. H.', is written above a horizontal line.

Signature

February 24, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8: Emergency Preparedness and Response</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURE

### PURPOSE

The purpose of this procedure is to prevent or minimize injury, occupational illness, property damage, and downtime caused by emergency situations.

### SCOPE

An appropriate emergency response plan will be created for each J-AAR jobsite, office, and plant. J-AAR health and safety, project management, and supervisors will ensure that all potential emergency situations are identified during the construction pre-planning phase and available to all workers through HCSS. During this time applicable emergency equipment will be identified, procured, and made available on J-AAR jobs. This equipment will be easily identifiable, well-marked, and inspected as per all relevant legislation and manufacturer's recommendations.


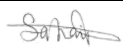
Input to the emergency response plans from relevant workplace parties will always be considered. J-AAR will ensure that all employees who are involved in emergency response have adequate training for their roles. This includes first-aid, fire-extinguisher use, and specialized rescue equipment such as the 3M Rollgliss system. Under no circumstances would J-AAR expect an employee to put themselves in harms way.

As part of this training J-AAR will run periodic emergency response drills with employees who are part of response teams. Running these drills allows for input from those involved as well as ensuring training remains fresh. The records of these drills will be recorded by site supervision and sent to J-AAR health and safety to be stored on the servers and analyzed for deficiencies. If any deficiencies are found J-AAR health and safety along with supervision will create and implement a correct action plan to address them.

While each project/place of business is likely to have different emergency plans and needs there are minimum requirements across all of J-AAR found below:

- All plans must include:
  - Procedures for the emergency it relates to
  - The contact information for emergency services
  - The contact information for J-AAR project management
  - Map and directions to the nearest hospital/emergency medical facility
  - Map and directions and contact number for the nearest MLTSD offices
- Appropriate number and location of fire extinguishers
  - Must be inspected and recorded monthly (part of the supervisor's monthly inspection)
  - Must be inspected by a certified individual annually
- First-aid
  - Appropriately stocked first aid-kits per the number of workers on site per Reg. 1101
  - Appropriate number of qualified first aiders on site
  - Adequate means of transporting an injured person to a hospital or medical facility
    - This includes getting the worker from where the injury occurred to an area where EMS can access them/to a vehicle

It is the responsibility of project management and supervision to ensure that all plans and equipment are inspected and maintained in accordance with the act, regs, and manufacturer's recommendations.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 8: Emergency Preparedness and Response</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURE

All workplace parties will be briefed on the emergency plans, their roles, and the location of emergency equipment, first-aid kits, and fire extinguishers at the time of their site-specific orientation.

### PROCEDURE

#### Transporting an Injured Worker to a Medical Facility/Hospital:

1. Determine if the injured person is stable enough to move without risking further injury.
  - If not and they are accessible by EMS then stabilize as best as possible and administer first-aid until EMS arrives
  - If required, call for the crane basket/stretcher and bring them to a safe, easily accessible area
2. Determine if the worker needs an ambulance or if another appropriate means will suffice
  - Call 911 if there is any doubt – always err on the side of caution
  - If 911 is not necessary then either a J-AAR representative (foreman, supervisor, manager) will drive them to a medical facility or arrange a taxi service to bring them and meet them at the facility as soon as practicably possible.
    - NEVER LET AN INJURED WORKER TRANSPORT THEMSELVES TO A HOSPITAL
3. Wait with the injured worker until they are admitted

#### Medical Emergency Response:

1. J-AAR site supervision shall take control and proceed according to the following guidelines (attached emergency response team sheet should be completed at mobilization. ERT should meet at least quarterly to go over roles/responsibilities and schedule annual drills):

##### Workers

##### PRESS RELATIONS

- Refer all questions of the press or news media to a delegated person at head office. Simply state that all actions to relieve suffering are being taken and that all other enquires be referred to head office.

##### DO NOT INTEREFERE WITH THE ERT RESPONSE

- If you are not assigned a role on the emergency response team and it is safe to do so, please leave the incident scene.
- let the ERT/Supervisors know you were a witness
- Do not film the scene/take pictures. This is not helpful and just creates congestion and confusion

##### Supervision

##### TAKE COMMAND


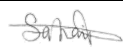
- The most senior or trained person on site should take charge
- Assign duties to specific individuals

Meet the worker at the hospital as soon as possible

##### Emergency Response Team

##### ASSESS THE SITUATION

- Remain calm
- Identify the emergency, problem, hazards, and who is involved.
- Try to identify the cause that must be controlled

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 8: Emergency Preparedness and Response</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURE

### CALL EMERGENCY SERVICES

- Charge someone with the responsibility to call Emergency Services and instruct him/her to report back with the information as to when help will arrive.
- As a rule, sites will have a list of emergency numbers posted. In smaller projects or those of short duration, a site-specific list of emergency numbers may not be available. In this instance, call the office by any means available (cell phone, two-way radio).
- Never leave the victim alone unless your personal safety is compromised.

### ADMINISTER FIRST AID

- Ensure that First Aid is provided by a qualified person.
- Get an AED if available
- There should be at least one person at each project site who is trained to administer First Aid (Standard or Emergency as required).
- Organize the workforce for a headcount and emergency assignments

### PROVIDE PROTECTION

- Eliminate further losses and safeguard the area. Control the energy source causing the emergency.
- Protect victims, equipment, materials, environment, and accident scene from continuing damage or further hazards.
- Divert traffic, suppress fire, prevent objects from falling, shut down equipment or utilities, and take other necessary measures. Use spill response if required.
- Protect all persons (workers and members of the public) from dangers arising from the emergency.
- Evacuate area if necessary for protection.
- Preserve the accident area; only disturb what is essential to maintain life or relieve human suffering and prevent immediate or further losses.

### MAINTAIN CONTACT

- Keep emergency services informed of the situation.
- Contact utilities such as gas and hydro where required
- Exercise increasing control over the emergency until hazards are controlled

### GUIDE EMERGENCY VEHICLES

- Have someone waiting to alert and guide the emergency vehicle to the location of the emergency scene.

### OBTAIN NAME OF HOSPITAL OR EMERGENCY CENTRE


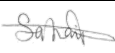
- Get information (name, address, phone number) about the location where the victim is being taken.

### ADVISE MANAGEMENT

- Contact Management with details of the accident. The information must be detailed enough for Management to notify relatives of the victim and the authorities if necessary.
- Complete the required Incident Report.

### PRESERVE ACCIDENT SCENE

- Barricade or rope off the area to avoid disturbing the conditions at the time of the accident

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8: Emergency Preparedness and Response</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURE

as much as practical. The area should remain isolated until authorities have an opportunity to investigate the accident.

### Confined Space Rescue:

Confined space rescue procedures are outlined in J-AAR's Confined Space Rescue Procedures document. This section only provides a brief outline. The rescue options mentioned here are listed in order. Only move to the next one if the previous is not viable.

#### Attendant

- Summon the ERT immediately
- Never enter the space yourself

#### Emergency Response Team

- Assess the situation and hazards
  - Call 911 immediately
1. If possible, have the injured worker perform a self-rescue.
  2. Non-entry rescue

### Working at Heights Rescue:

Working at heights rescue procedures are outlined in J-AAR's fall arrest rescue procedures document. This section is just a brief outline.

When a worker has their fall arrested:

#### Workers/Supervisors

- Call 911 immediately
- Notify J-AAR supervision/ERT



#### Emergency Response Team

- Call 911 immediately
- Attempt a PEWP rescue if the equipment is available
- If not, try a ladder rescue
- If a ladder rescue is not viable and a crane basket is available attempt a basket rescue
- Finally, if no other options are available attempt a rescue with the 3M Rollgliss system
- The rescue coordinator should ensure J-AAR health and safety is made aware of this incident. This must be reported to the MLTSD

### Emergency Evacuation:

- When you hear three long blasts of a horn it is time to evacuate the jobsite
- All workplace parties must deenergize any tools/equipment and immediately head to the muster point



 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 8: Emergency Preparedness and Response</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURE

- Everyone must wait at the muster point until dismissed by your supervisor or the emergency response team. A headcount of all workplace parties must be taken. Leaving before dismissal could cause emergency personnel to go look for you in a hazardous environment

### Workers

- Upon receiving the signal to evacuate everyone must swiftly and safely leave the jobsite
- Deenergize any tools and equipment you were using on your way out
- Wait at the muster point until dismissed
- You may not re-enter the jobsite until it is deemed safe by EMS
- Follow directions from the emergency response team

### Supervisors

- Ensure all workers under your supervision are aware they need to evacuate
- Exit the job site and head to the muster point
- Conduct a headcount of your crew and provide it to the ERT

### ERT

- All members of the ERT should know their roles in the event of an emergency.
- Call 911
- Conduct a head count
- Meet first responders at the gate/intersection
- Communicate with first responders and supervisors/workers

### Debriefing and Post-Traumatic Stress:

- The recovery process after an emergency is a critical step. Many people are unaccustomed to dealing with emergencies and may need assistance or recovery time after an emergency.
- Debriefing is necessary to review how well the plan worked and what corrections may be needed

### Spills of Hazardous Materials:


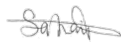
#### Workers and Supervisors

- Call for an evacuation if required
- Notify J-AAR supervision and/or a member of the ERT
- If the name of the chemical is known provide it, if not determine the name from the label
- If it is safe to do so, begin the spill clean up procedure
- If during clean up, anyone shows signs or symptoms from the MSDS call 911 and evacuate immediately

#### Emergency Response Team

- Assess the scene and hazards
- Review MSDS
- If required initiate evacuation procedure and call 911

For more detailed information see J-AAR spills procedure

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8: Emergency Preparedness and Response</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURE

### Emergency Violence:

#### Workers and Supervisors

- Do not confront the individual
- Evacuate the site if required
- Call 911
- Contact J-AAR Supervision/ERT as soon as it is safe to do so

### Emergency Response Team

- Do not confront the individual
- Call 911 immediately
- If required initiate evacuation procedure and call 911
- Act as the point of contact between police and the site
  - o Meet at the gate
  - o Provide information as required

## RESPONSIBILITIES

### Senior Management

- Review the emergency plans and procedures at least annually
- Ensure J-AAR carries out work in compliance with the Act and regulations
- Assist in the development of site-specific emergency procedures
- Post or—when J-AAR is not the constructor – ensure the constructor has posted all required emergency procedures in a conspicuous area
- Ensure site supervision has the necessary equipment and manpower to enact the emergency plans
- Ensure drills are carried out on jobsite

### Supervisors


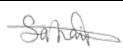
- Assist in the development of site-specific emergency procedure
- Conduct emergency drills as required – at least annually
- Adhere to emergency plans

### Workers

- Work in accordance with instruction tools and protective devices provided
- Report any changing conditions or hazards that arise during task completion
- Ask for clarification if unclear about information provided or task assigned
- Make yourself aware of the emergency procedures on each site
- Abide by all emergency procedures
- Participate in drills

### Health and Safety Team

- Develop Emergency response plans
- Coordinate with management and supervisors to ensure drills are conducted
- Collect and analyze suggested corrective actions from emergency drills

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8: Emergency Preparedness and Response</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURE

- Help implement corrective actions across all similar J-AAR places of business

### Health and Safety Committee/Rep

- Review emergency plans
- Participate in assessments as required
- Provide recommendation for change

### Subcontractors

- Review emergency plans as required
- Participate in drills as required

### Visitors

- Review emergency plans as required
- Participate in drills as required

## REQUIREMENTS

### Documentation

- Emergency plans and procedures
- Confined Space permits
- Environmental Management Plan
- Safe Job procedures
- Safe Work Practices
- Occupational Health & Safety Act
- Construction Regulation 213/91
- Industrial Regulation 851/90
- Relevant MSDS

### Training


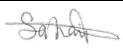
- Working at heights
- Confined space entry
- WHMIS
- Care and use of rescue equipment
- Site specific safety plan
- Selection, care, and use of protective devices required

## ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

## REVIEW


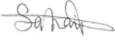
This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8: Emergency Preparedness and Response</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## EMERGENCY PREPAREDNESS AND RESPONSE PROCEDURE

### DOCUMENT CONTROL

All records and documents mentioned above will be stored indefinitely on the HCSS servers. They can be accessed by J-AAR management at anytime.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.2: Extreme Weather Preparedness and Response</b>		
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	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 1	

## EXTREME WEATHER PREPAREDNESS AND RESPONSE

There may be times throughout the year where extreme weather makes it unsafe to continue work on J-AAR jobsites. These extreme weather events could include:


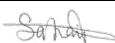
- Tornado
- High winds
- Lightning storm
- Snow/ice event
- Flooding

If there is an alert issued by forecast Canada and you have yet to leave your home for work, please contact your supervisor. Work hours may be varied for the day or cancelled all together. There is no need to put yourself at risk. The decision to implement an extreme weather plan is that of J-AAR supervision. It is based on:

- Type of forecasted event
- Probability of forecast
- Probability of being able to continue operations during the event
- Hazards created by the event (road hazards, electrical hazards, debris hazards, etc.)

Factors to consider at the end of the day previous/before a high wind event

- Material must not be stored in a way which endangers another worker/the public
- All construction material and debris must be safely stored and secured
- Electrical equipment should be deenergized if possible. If not, it should be reasonably protected
- Fast fencing should be secured to ensure it does not topple
- Any crane lifts should be postponed. The crane operator will dictate when the crane shuts down/begins work

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 8.4: Confined Space Rescue Plan</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 2	

## CONFINED SPACE RESCUE PLAN

As part of the confined space entry permit J-AAR's Confined Space Rescue Plan should also be completed prior to entry. The completion of this sheet ensures that all potentially required rescue equipment is available on site, it has been inspected by the emergency rescue team, and everyone involved knows their roles and means of summoning. At this point those on the ERT should also review the entry permit to make themselves aware of any potential hazards before an emergency situation may occur.

In the event a confined space rescue is required ensure these four general rules are always followed:

1. Call 911 immediately
2. The attendant is never to enter the space. They should summon the ERT at the first signs of a problem
3. Always chose the rescue option which exposes members of the ERT to the least amount of risk
4. Always assess the situation for cause of injury and any actual or potential hazards. Never put yourself at an unnecessary level of risk

With three in mind the following means of rescue are listed in order of priority:

### Self-Rescue

Determine the cause of the injury and any potential or actual hazards to the worker and the ERT. If the entrant is alert and mobile have them try to exit the space on their own. The ERT will help guide the entrant from the space. Once they are out the ERT will help them get to a safe, comfortable space and give them a full assessment. Provide first-aid if necessary and wait with the entrant for EMS to arrive. The entrant should be monitored and made as comfortable as possible during this time.


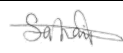
### Non-Entry Rescue

If the entrant is non-responsive or cannot physically exit the space themselves non-entry rescue should considered. If non-entry rescue is the plan, then it is important to note that the entrant must never remove their lifeline/harness while in the space and they must remain in a location where they can be retrieved by the retrieval system. Otherwise, this is not a viable rescue plan.

Assess the situation for any actual or potential hazards. The Attendant/ERT should attempt to use the external retrieval system to remove the entrant from the space. Once the entrant is out of the space bring them to a safe, comfortable place. They should be assessed and given first aid if required; members of the ERT should monitor the entrant and wait with them for EMS to arrive.

### Simple Rescue

If the entrant is unable to be retrieved externally then a member of the ERT is going to have to enter the space to assist them. Before entering the space, the rescuer will don a full body rescue harness and lifeline. If there is a potential fall hazard a fall arrest system must be in place. Once inside the rescuer will assess the situation and attempt to free the entrant from any obstacles and prevent any further injury. If there is an atmospheric hazard – first aid/stabilization of the entrant should not be done at all in the space. Time spent in these conditions poses a greater hazard than trying to move the entrant without stabilization. If there are not atmospheric hazards at this time, then an assessment and stabilization should be carried out prior to moving the entrant. The rescuer will attach the rescue lifeline to the entrant and inform the attendant/member of ERT to begin extraction. The rescuer

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.4: Confined Space Rescue Plan</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 11
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 2	

### CONFINED SPACE RESCUE PLAN



will guide the entrant around any obstacles which may impede/redirect extraction. Temporary carabiners may be required. Once the entrant has exited the space they should be brought to a safe, comfortable place. They should be assessed and given first aid if required; members of the ERT should monitor the entrant and wait with them for EMS to arrive.

#### Complex Rescue

Complex rescue procedures follow simple rescue procedures, but with additional considerations. A complex rescue requires two rescuers entering the space to retrieve the entrant.

This is likely due to:

- Entrant being in a space within a space – multiple rooms, corridors, etc.
- One rescuer is not enough to guide the entrant out through obstacles
- If multiple redirects are required
- If communication concerns are present. If the space does not allow for radio use and there is no clear line of sight for visual options.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.4: Fall Arrest Plan</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 2	

## FALL ARREST PLAN

### PURPOSE

The purpose of this plan is to outline the responsibilities, roles, and procedures within J-AAR Excavating designed to limit the exposure our workers have to fall hazards and limit the potentially catastrophic outcomes of falls, and arrested falls.

### SCOPE

This plan is designed to cover all areas of J-AAR where any workplace party is required to wear fall protection equipment and where any fall may be arrested. It must be reviewed before the workplace party is exposed to a fall hazard.

#### Suspension Trauma

If someone has had their fall arrested by a fall arrest system, there is a high potential for them to suffer from suspension trauma/orthostatic intolerance. This is a serious condition which may result in death. The vertical position which the suspended person remains in for a long period of time after having their fall arrested can lead to pooling of blood in the legs. A prolonged/poorly executed rescue may result in the suspended person suffering cardiac arrest.

Equipment such as harness relief straps can be utilized as a first step in the prevention/delay of suspension trauma. They allow the suspended person to shift their weight from one leg to the other and keep their blood from pooling.

The different types of rescue procedures outline below are listed in order. Do not attempt a lower ranked procedure if a higher one is viable.

Anytime a workplace party has their fall arrested the MLTSD must be notified. Follow the reporting procedure laid out in O.Reg. 420/21.

### PROCEDURE


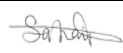
#### Someone is found Suspended in a Fall Arrest System

1. The roles of the emergency rescue team should be determined at mobilization and the designation sheet should be completed and posted in the workplace to avoid confusion
2. Notify J-AAR supervision immediately. They will implement the site-specific rescue procedure
3. Call 911
4. Once the Emergency response team has arrived at the scene everyone not involved in the rescue procedure should vacate the area. Having many people around will only cause congestion and confusion during the rescue process and may impede EMS' ability to get to the area.

#### Power Elevated Work Platform (PWEPP) Rescue

- If a PEWP is available on site, and a member of the rescue team is trained in it's use and operation this should always be the first option for rescue
  - The rescuer should never expose themselves to a fall hazard. They should be wearing a harness with lanyard while operating the PWEPP.
  - They should bring a second lanyard and J-knife with them while performing the rescue
1. Position the PEWP in an area where the basket can reach the suspended person



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 8.4: Fall Arrest Plan</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 2	

### FALL ARREST PLAN

2. Have another member of the ERT secure the scene and danger tape it off
3. A third member should call 911 and wait for them at the gate/clearly marked intersection.
4. Slowly raise the basket of the PEWP towards the suspended person until they are within the guardrails.
5. Attach the second lanyard/SRD to the rescued worker and secure it to the PEWP
6. Remove the original fall protection device from their D-ring
7. Carefully lower the basket to the ground
8. Once at ground level administer first aid
9. Monitor the rescued person until EMS arrives

#### Ladder Rescue

- Ladder rescue is only viable if the suspended person is conscious and able to use their legs
  - Have a member of the ERT call 911 and meet them at the gate/clearly marked intersection
  - Have a member of the ERT secure the incident area
1. The area around the suspended person should be cleared of all unnecessary activity
  2. Position an extension ladder near the suspended worker
  3. Secure the top and bottom of the ladder
  4. Instruct the suspended person to mount the ladder
  5. If they are attached to a lifeline which descends to the ground have them slide their rope grab up to release it and slowly descend the ladder. This should be done in 3 step increments
  6. If the lifeline does not descent to the ground and it is possible to position another lifeline and rope grab in a way where the person on the ladder can attach it to themselves this should be attempted
  7. Once the new lifeline is attached to a D-ring on their harness the old one can be removed or cut and step 5 can be repeated
  8. Monitor the rescued person until EMS arrives
  9. If there is no way to protect the person on the ladder from another fall have them stay on the ladder until EMS arrives. This will allow for them to move somewhat. Greatly reducing the risks of suspension trauma

#### Rollgliss

- A rescue using the rollgliss system has the greatest exposure to hazards for both rescuers and the suspended person. It should be attempted only if there are no other viable options.
1. The area around the suspended person should be cleared of all unnecessary activity
  2. Find an appropriate anchor point for both the rescuer and the Rollgliss system
  3. Throw the bag with the rope to the ground.
  4. Attach the Rollgliss to the worker in need of rescue. Use either their sternal or dorsal D-rings
  5. Remove slack from the unit. Slowly turn the wheel in the direction required to raise the worker slightly. This will remove any slack in the system
  6. If required raise the worker high enough that an SRL would release it break, or enough to remove the old lifeline if it would prohibit the rescue
  7. Make sure the rope is correctly placed around the pigtail and in the cleats for the brake
  8. Position the worker so they can slowly descend and release the brake. The pigtail and rope can be used to slow the descent further, the Rollgliss will not allow a descent faster than 3 feet per second.



## **RECORDS & STATISTICS POLICY**

Senior Management believes that for health and safety performance to continuously improve it must be organized, monitored, and regularly measured. We are committed to collecting, maintaining, reviewing and evaluating documents, reports, records, and information analysed to formulate statistics and identify trends as set out in the corresponding procedure.

Statistics and trends will be reviewed quarterly, analyzed at least annually, and used to develop corrective action plans, goals, and objectives. In addition, year over year trend comparisons will be developed and reviewed with the outcome aimed at continuous improvement of safety performance, program effectiveness, legal compliance, and improvements to the HSMS.

Safety documentation used for trend analysis will provide a historical account of the improvements to the health and safety program. Hard copies of this documentation will be retained for a minimum of two (2) years unless otherwise required by regulatory or customer requirements. All electronic copies will be stored indefinitely.

Records of accidents involving injuries where medical attention is received shall be kept on file for seven (7) years and occupational disease records will be retained permanently.

The HSE department will gather data for analysis and review project specific safety documents regularly. Documents will be filed in the appropriate binders on site and in folders on the server. Adequate training will be provided to ensure supervisors, managers and project coordinators know where to file and access needed safety documentation.

Where improvements are deemed necessary, revisions to the OHSMS will be made in consultation with managers, supervisors, JHSC, representatives and employees.

Management will:

- Rigorously carry out implementation and enforcement this policy and procedure
- Ensure HSMS documents and resources are available electronically or in hard copy
- Ensure safety related documentation is maintained on site until the project is complete
- Upon project completion ensure hard copy documents are sent to head office
- Communicate statistics, trends, goals and objectives

Supervisors are responsible to:

- Ensure all required documents and forms are properly filled out and filed
- Ensure safety related documentation is maintained on site until the project is complete
- Upon project completion ensure hard copy documents are sent to head office
- Ensure workers receive training to fill out and file HSMS forms and documents
- Participate in communication meetings

Employees are individually responsible to:

- Fill out forms and documents required by the HSMS
- File forms electronically or manually as required
- Adhere to company rules and directives
- Participate in communication meetings



## RECORDS & STATISTICS POLICY

Our Records & Statistic Procedure includes more information on responsibilities, time frames, methods of development, gathering and evaluating information to identify trends, create action plans, and communicate results to workers and others as deemed required.


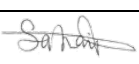
Compliance with our health and safety policy and supporting HSMS is a condition of employment. Violations are subject to our progressive discipline process up to and including termination and/or removal from site.

A handwritten signature in black ink, appearing to read 'Sandra', is written over a horizontal line.

Signature

February 24, 2023

Date

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 9: Records and Statistics Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 11
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 8	

## RECORDS AND STATISTICS PROCEDURE

### PURPOSE

Senior management believes that for health and safety performance to continuously improve, it must be organized, monitored, and regularly measured. We are committed to reviewing statistics, identifying trends and developing corrective actions to improve safety performance, ensure program effectiveness, legal compliance and areas for continuous improvement of the Health and Safety Management System (HSMS) at least annually. This procedure will help reduce accidents, injuries, and risk to workers by establishing a system to develop, record, and review records, statistics, and documents. Statistic will then be used to identify trends, monitor and evaluate the success of our OHSMS.

### DEFINITIONS

**Document:**

A blank HSMS template, document or form used to record safety related information including emergency plans, hazard assessments, inspections, incident reports or other form tor report used to comply with the OHSMS

**Lagging Indicator:**

A reactive measure of negative safety performance measuring the effectiveness of a safety program after something has occurred (Incident, injury, equipment damage Near miss). Typical lagging indicators include the number of incidents, lost time accidents, medical aid, first aid, property damage and near misses.

**Leading indicator:**

A proactive measure of prevention efforts in safety systems and processes including inspections, meetings, training, hazard reports, surveys, equipment inspections, recommendations, communications and worker involvement.

**Quantitative Information:**

Relevant and verifiable data to produce a numerical value which is then used to identify trends, predict predict probability monitor the effectiveness of the OHSMS.


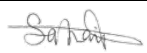
**Qualitative Information:**

Information, records or documents that do not have a numerical data, for example talking to employees about why a certain incident occurs to get a better understanding of why it happened or tracing an incident back to the root cause or measuring safety culture.

**Record:**

An OHSMS template, document or form such as emergency plans, hazard assessment, inspection, incident report or other form tor report completed electronically or manually to comply with the OHSMS.

Records also include written information such as orders or directives from the MLTSD, MECP, JHSC minutes, medical records or other regulatory authorities.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 9: Records and Statistics Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek		COR Elements: 11
	APPROVAL DATE: 02/24/2023		DATE OF ORIGIN: 02/02/2023
	SIGNATURE: 		REVISION # 1
		# OF PAGES: 8	

## RECORDS AND STATISTICS PROCEDURE

These forms can be used for statistical review, identifying trends, and will be kept for a specific time or permanently as required.

### Statistic:

A collection of information gathered over time, compiled, and interpreted to show experience, identify trends, and used to compare historical data to expected outcomes.

### SCOPE

This procedure applies to the organization, monitoring and measurement of health and safety documents and records including internal and external inputs, outputs and timing.

Documents, reports, records and information will be developed, retained and collected so that statistics can be gathered. Statistics will be used to identify trends and reviewed when evaluating OHSMS and Environmental Program performance.

In addition the procedure sets out responsibilities, time frames, and methods of gathering and evaluating information, identifying trends, creation of action plans and communicating results to workers and others as deemed required.

Qualitative and quantitative records are both vital to identify trends, program changes, progress. Implementation and overall effectiveness of the OHSMS.


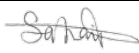
Documents and records including incidents, near misses, hazard reports, first aid and medical aid accidents, inspections, incident and accident reporting forms, corrective action plans, JHSC meeting minutes, health records, recommendations and past performance comparisons will be gathered, statistics generated, and trends identified for review by senior management at least annually with the goal of identifying:

- 1) Areas of excellence
- 2) Non-conformance with program requirements
- 3) Areas for improvement, prevention of injuries and damage to , equipment and property

Both leading and lagging indicators will be tracked and reviewed to assess safety performance, identify trends and determine needs to improve health and safety performance as well as safety culture.

To ensure the best chance to identify trends:

- All OHSMS documents, forms and resources are available electronically or in hard copy.
- Construction site documents must be filed in binders on site and in folders on the server where possible.
- Documentation and records will be maintained on site until the project is complete.
- Office and facility documents must be filed electronically or manually and sent to head office if required.
- Upon project completion, safety documents not already electronically stored, will be sent to head office to be physically stored or transferred to digital format and stored electronically.
- Hard copies of health and safety records will be maintained for two (2) years (unless otherwise required) to provide a historical account of the health and safety program.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 9: Records and Statistics Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## RECORDS AND STATISTICS PROCEDURE

- Soft copies will be stored on J-AAR or HCSS servers indefinitely.
- Records of medical aid injuries shall be kept on file for seven (7) years.
- Records of occupational disease will be maintained indefinitely.

Findings and trends including historical comparison and recommendations for change will be communicated to prior to senior management for their review prior to the annual HSMS review and annual goal setting.

### PROCEDURE

#### Identifying required data:

The HSE team or designate will:



- Identify records, forms, and information to be gathered and used to develop leading and lagging indicator statistics to measure the applicability, implementation, and effectiveness of our OHSMS
- Review safety documents regularly to gather and analyze data to identify trends
- Generate a report including trends and comparisons with past performance for review
- Communicate the trends to senior management
- Make recommendations for improvement of the OHSMS

Trends report will include at a minimum:

- Lost Time Accidents
- Medical Aid s
- First Aids
- Incident Reports
- Hazard Reports
- Equipment Damage
- Kilometers driven
- Vehicle Accidents
- Training
- MLTSD reports
- Inspections
- JHSC and Worker Representative activities and recommendations

Documents and information gathered may include but are not limited to:

- Senior management safety talks and communications (Leading indicator)
- Total number of management inspection reports (Leading indicator)
- Total number of supervisor inspection reports (Leading indicator)
- Total number of JHSC/worker rep inspection reports (Leading indicator)
- Equipment inspection reports (Leading indicator)
- Emergency response drill reports (Leading indicator)
- Total number of hazard assessments (Leading indicator)
- Total number of hazard reports (Leading indicator)

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 9: Records and Statistics Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## RECORDS AND STATISTICS PROCEDURE

- New safe work policies and procedures (Leading indicator)
- Progressive discipline records (for safety contraventions) (Lagging Indicator)
- Training sessions and courses (Leading indicator)
- Total number of health and safety meeting minutes/records (Leading indicator)
- Recommendations and issues resolved (Leading indicator)
- Subcontractor performance reports (Leading indicator)
- Total number of near miss reports (Lagging Indicator)
- Total number of accidents (Lagging Indicator)
- Total number of first aid injuries (Lagging Indicator)
- Total number of medical aid injuries (Lagging Indicator)
- Total number of critical injuries (Lagging Indicator)
- Total number of fatalities (Lagging Indicator)
- Total number of lost time injury days (Lagging Indicator)
- Total number of modified work days and return to work plans (Lagging Indicator)
- Total number of on road vehicle accidents/kilometers driven (Lagging Indicator)
- Total number of off-road equipment accidents (Lagging Indicator)
- Cost of equipment damage (Lagging Indicator)
- Summary of regulatory visits, orders and directives (Lagging Indicator)
- Work refusals reports and results (Lagging Indicator)
- Training sessions (Leading Indicator).

### Data for statistical & trend analysis:

Managers and supervisors:

- Ensure that forms, check sheets and records required by the HSMS are completed at sites and facilities and filed electronically or manually.

Workers:

- Populate information on out forms, check sheets and records as instructed and submit them manually or electronically for filing.

Paper Documents, Forms and Records:


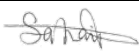
- Paper documents, forms and records must be filed at site daily and at head office weekly or as required by health and safety procedures if sooner.

Electronic Documents, Forms and Records:

- Must be synchronized by the end of each work day or as required by health and safety procedures if sooner.

The HSE team or designate will:

- Review and organize data from sites and facilities to create statistics

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 9: Records and Statistics Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## RECORDS AND STATISTICS PROCEDURE

- Identify trends using the statistical data
- Generate trends reports including monthly, quarterly, annually and year over year comparison reports using information, charts and graphs.
- Provide the reports to senior management for review monthly or as otherwise required
- Ensure year over year reports are generated for annual review
- Develop a presentation including charts and graphs to compare year over year results.

### Review:

Senior management Will:

- Senior management will review statistics at least annually and consider the information in a timely fashion.
- Some trends may be reviewed more often (monthly, quarterly) when required to determine effectiveness of corrective actions or compliance with regulatory orders, directives or as determined necessary.
- Make changes to the HSMS as required to improve negative trends
- Communicate and celebrate positive trends
- Set goals and objectives to improved health and safety performance.

Safety team

The health and safety manager or designate will review health and safety statistics including both leading and lagging indicators and prepare a trend analysis and comparison report of the previous three (3) years.

JHSC

- The JHSC and representatives will review statistics and trends at minimum annually
- At their regular JHSC meetings when new trends are available
- Some trends may be reviewed more often as determined by the company
- Make recommendations for changes to the HSMS to improve safety performance



### Training:

- In house training will be carried out by the Health and Safety Department including the contents and requirements of this procedure how and where to access documentation, forms, create, populate and store records in compliance with the OHSMS
- External training will be provided as required including inspections, accident investigations, and JHSC and representative duties.

### Communications:

- A communications plan will be developed by the health and safety manager or designate. Worker participation will be strongly encouraged.
- The plan will account for all workers to participate in the communication meetings
- A schedule will be developed for mandatory meetings with participation of senior management, project management, supervision and workers.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 9: Records and Statistics Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## RECORDS AND STATISTICS PROCEDURE

- Trend reports including annual statistics and year over year reports will be communicated to all staff at a minimum during annual safety meetings.
- Objectives and goals based on trends will be communicated by senior management
- Employee input, ideas and recommendations will be considered during meetings

### Changes:

- Changes to information gathered and tracking of trends will be implemented as required or deemed necessary by the company
- Policy, procedure, practice changes will be developed by the health and safety department with input from workers and supervisors and approval of senior management


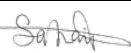
## RESPONSIBILITIES

### Senior Management:

- Provide commitment and resources for development implementation and review of the statistics and records policy and procedure.
- Set criteria for collection of documents, records and required information
- Develop an action plan in accordance with the management review procedure
- Consider trends to set reasonable, obtainable and measurable OHS goals or objectives
- Schedule statistical review in accordance with the management review procedure
- Communicate the statistical review results to employees and relevant parties
- Make changes required to improve the performance of the OHSMS
- Ensure relevant HSMS documents and records are completed and maintained
- File or send relevant H&S information to Head Office as required by the OHSMS
- Monitor the quality of orientation, audits, safety and JHSC meetings, hazard assessments, workplace and equipment inspections, hazard reports
- Monitor the quality of first aid, medical aid and lost time accident reports
- Compile project or facility related monthly or annual reports for H&S activities
- Complete subcontractor performance evaluations
- Ensure statistics, trends and corrective action plans are communicated to workers
- Encourage proactive hazard reporting is encouraged
- Participate in the statistical review communications

### Supervisors:

- Record and track accidents, incidents, near misses first aid, medical aid and lost time occurrences, equipment damage, work refusal, MLTSD visits, directives, orders and recommendations
- Record and track training, orientation, audits, safety and JHSC meetings, hazard assessments, workplace and equipment inspections, hazard reports.
- File or send relevant HSMS records, documents and information to head office
- Participate in subcontractor performance evaluations
- Participate in the statistical review communications

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 9: Records and Statistics Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## RECORDS AND STATISTICS PROCEDURE

### Workers:

- Report all accidents, incidents, first aid occurrences, lost time injuries and equipment damage to appropriate manager or supervisor
- Ensure completion and filing of HSMS documents, reports and records
- Participate in the statistical review communication
- Organize and track leading indicator documentation including orientation, audits, safety and JHSC meetings, hazard assessments, workplace and equipment inspections and hazard reports, and subcontractor performance evaluation.

### Health and Safety Team:

- Organize and track lagging indicator statistics including accidents, incidents, near misses, first aid, medical aid and lost time accidents, equipment damage, work refusals, MLTSD directives, orders, recommendations and modified work days
- Review data, and develop trend analysis report for review by management
- Develop and communicate action plans based on statistical review.
- Make recommendations based on review of statistics

### Health and Safety Committee/Rep:

- Complete required H&S documentation for inspections
- Complete required H&S documentation for JHSC meetings and recommendations
- Assist in the communication of review results as required
- Assist in quality review of documents

### Subcontractors:

- Complete required H&S documentation for inspections
- Complete required H&S documentation for JHSC meetings
- Complete required H&S documentation for incident investigations
- Complete required H&S documentation for hazard assessments
- Communicate the results of review as required


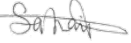
### Visitors:

- Complete required H&S documentation

## REQUIREMENTS

### Training

- In house training will be carried out by the Health and Safety Department including contents and requirements of this procedure and access to documentation, forms and storage of records in compliance with the HSMS
- External training will be provided as required including inspections, accident investigations, and JHSC and representative duties.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 9: Records and Statistics Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 11	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 8	

## RECORDS AND STATISTICS PROCEDURE

### Documentation

- Records of senior management meetings
- Records of employee communication meetings
- JHSC meeting minutes
- Annually review report

### Legislative requirements

- Sections 8, 9, 25, 26 27, 28 of the occupational health and safety act

### ENFORCEMENT


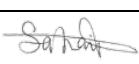
Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

### DOCUMENT CONTROL

All records and documents mentioned above will be stored indefinitely on the HCSS servers. They can be accessed by J-AAR management at anytime.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10: Legislation and Other Requirements Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 5	

## LEGISLATION AND OTHER REQUIREMENTS PROCEDURE

### PURPOSE

The purpose of this procedure is to identify and ensure that J-AAR Excavating is in compliance with all legislation, regulations, standards, and any other requirements which may apply to the scope of work we undertake.

### SCOPE

This procedure covers all places J-AAR Excavating carries out business and all legislation, regulations, standards, and any other requirements which may apply to the scope of work we undertake.

### Legislation and Other Requirements

J-AAR Excavating has identified the following as applicable to our scope of work.


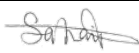
There may be additional municipal or regional regulations depending on the area and work being performed. Project Managers should consult with local authorities before commencing work.

### Employment Standards:

Employment Standards Act, 2000, S.O. 2000, c. 41

### Construction and Industry:

- Occupational Health and Safety Act, R.S.O. 1990, c. O.1
- O. Reg. 420/21: NOTICES AND REPORTS UNDER SECTIONS 51 TO 53.1 OF THE ACT - FATALITIES, CRITICAL INJURIES, OCCUPATIONAL ILLNESSES AND OTHER INCIDENTS
- O. Reg. 381/15: NOISE
- O. Reg. 297/13: OCCUPATIONAL HEALTH AND SAFETY AWARENESS AND TRAINING
- O. Reg. 490/09: DESIGNATED SUBSTANCES
- O. Reg. 632/05: CONFINED SPACES
- O. Reg. 278/05: DESIGNATED SUBSTANCE - ASBESTOS ON CONSTRUCTION PROJECTS AND IN BUILDINGS AND REPAIR OPERATIONS
- O. Reg. 213/91: CONSTRUCTION PROJECTS
- R.R.O. 1990, Reg. 860: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
- R.R.O. 1990, Reg. 851: INDUSTRIAL ESTABLISHMENTS
- R.R.O. 1990, Reg. 833: CONTROL OF EXPOSURE TO BIOLOGICAL OR CHEMICAL AGENTS
- R.R.O. 1990, Reg. 1101: FIRST AID REQUIREMENTS
- Smoke-Free Ontario Act, 2017, S.O. 2017, c. 26, Sched. 3
- O. Reg. 87/13: TRAINING REQUIREMENTS FOR CERTAIN COMPULSORY TRADES
- Workplace Safety and Insurance Acts, 1997 - O. Reg 35/08: Return to Work and Re-employment - Construction Industry
- MTO Book 7

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 10: Legislation and Other Requirements Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 5	

## LEGISLATION AND OTHER REQUIREMENTS PROCEDURE

### Environmental:

- Environmental Protection Act, R.S.O. 1990, c. E.19
- O. Reg. 406/19 ON-SITE AND EXCESS SOIL MANAGEMENT
- O. Reg. 224/07 SPILL PREVENTION AND CONTINGENCY PLANS
- O. Reg. 675/98 CLASSIFICATION AND EXEMPTION OF SPILLS AND REPORTING OF DISCHARGES
- R.R.O. 1990, Reg. 360 SPILLS
- R.R.O. 1990, Reg. 347 GENERAL - WASTE MANAGEMENT

### Vehicles:

- Highway Traffic Act, R.S.O. 1990, c. H.8
- O. Reg. 185/22: PORTABLE TRAFFIC CONTROL SYSTEMS
- O. Reg. 133/21: ELECTRONIC DOCUMENTS
- Ontario Regulation 398/16 (Road-Building Machines)
- O. Reg. 419/15: DEFINITIONS OF COMMERCIAL MOTOR VEHICLE AND TOW TRUCK
- O. Reg. 366/09: DISPLAY SCREENS AND HAND-HELD DEVICES
- O. Reg. 199/07: COMMERCIAL MOTOR VEHICLE INSPECTIONS
- O. Reg. 555/06: HOURS OF SERVICE
- O. Reg. 363/04: SECURITY OF LOADS
- O. Reg. 512/97: CRITICAL DEFECTS OF COMMERCIAL MOTOR VEHICLES
- O. Reg. 424/97: COMMERCIAL MOTOR VEHICLE OPERATORS' INFORMATION
- O. Reg. 340/94: DRIVERS' LICENCES
- R.R.O. 1990, Reg. 611: SAFETY INSPECTIONS

### Safety Standards:

- Technical Standards and Safety Act, 2000, S.O. 2000, c. 16
- O. Reg. 219/01 OPERATING ENGINEERS
- O. Reg. 217/01: LIQUID FUELS
- O. Reg. 214/01: COMPRESSED GAS
- O. Reg. 223/01: CODES AND STANDARDS ADOPTED BY REFERENCE


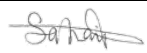
### Updates and Changing Legislation

J-AAR health and safety will monitor legislation and other regulations and standards for any updates that fall within our scope of work. Senior management will be advised of any relevant changes as per the procedures laid out in Section 14 of the OHSMS.

### Required Postings in the Workplace

The following documents are required to be posted/available on all J-AAR places of business as required:

Notice of Project  
Form 1000

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10: Legislation and Other Requirements Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 5	

## LEGISLATION AND OTHER REQUIREMENTS PROCEDURE

"Health and Safety Starts Here" Poster

Form 82 "In Case of Injury" Poster

A copy of the Occupational Health and Safety Act

J-AAR HSE Policy and Program

Designated Substances

Any monitoring/testing results

Recent H&S Site Stats

Any MLTSD correspondence

Emergency procedures

Rescue plans when required

Traffic Control Plan

Map to nearest hospital

If the Project employees more than 5 people regularly

Names and location/contact info for Health and Safety rep (or JHSC members if 20 or more people are regularly employed)

Workplace violence and harassment policies and procedures

Names and contact info for the emergency response team/qualified first aiders

First aid requirements

Reg 1101

First aid inspections

First aid inventory/order sheet

A required posting check list will be provided to every J-AAR supervisor, project manager, and superintendent to ensure they are aware of the posting requirements. J-AAR health and safety will ensure compliance while doing workplace inspections.

### PROCEDURE

#### Assessment

- J-AAR health and safety and senior management will assess J-AAR's scope of work and determine relevant legislation and other requirements

#### Compliance


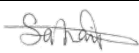
- J-AAR health and safety, project managers, superintendents, and supervisors will ensure that all J-AAR places of business are in compliance with all identified requirements

#### Inspections

- J-AAR health and safety and supervisors will perform workplace inspections at required intervals to ensure continued compliance

#### Re-assessment

- J-AAR health and safety will keep abreast of all changes to requirements and legislation

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10: Legislation and Other Requirements Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 5	

## LEGISLATION AND OTHER REQUIREMENTS PROCEDURE

- If/when changes occur health and safety will brief senior management and changes will be made per section 14 of this document

### Communication

- All changes made will be communicated to the relevant workplace parties per section 14 of this document

### Repeat

- This procedure requires a constant cycle of assessment – communication as long as work is being carried out.

## RESPONSIBILITIES

### Senior Management

- Ensure that all applicable legislation and other requirement are identified
- Ensure the company works in compliance with all identified requirements
- Review and approve any changes required
- Ensure that all projects are in compliance with the identified requirements
- Communicate with supervisors to ensure compliance and to keep them aware of any changes which may be coming

### Supervisors

- Ensure compliance by carrying out weekly inspections
- Ensure all postings identified in the required postings checklist are posted
- Communicate any compliance issues with project management
- Ensure all work carried out under their supervision is carried out in compliance with the identified requirements

### Workers


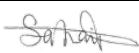
- Work in compliance with all requirements
- Help ensure compliance by informing your supervisor of any noncompliance issued

### Health and Safety Team

- Identify all required legislation and other requirements applicable to J-AAR's scope of work
- Monitor compliance and ensure all documentation is up to date
- Advise senior management of any changes to requirements
- Conduct an annual evaluation with senior management
- Ensure all J-AAR places of business are compliant by performing periodic field inspections

### Health and Safety Committee/Rep

- Ensure compliance of all requirements when performing inspections
- Report all issues found to J-AAR supervision

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10: Legislation and Other Requirements Procedure</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 5	

## LEGISLATION AND OTHER REQUIREMENTS PROCEDURE

### Subcontractors

- Work in compliance with all identified requirements

### Visitors

- Remain in compliance with all identified requirements at all times while on J-AAR locations

## REQUIREMENTS

### Documentation

- Workplace inspections
- Identified legislation and other requirements
- Records of Training
- Manufacturer's instructions

### Training

- Location specific orientation
- Task specific training

## ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.


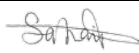
## REVIEW

This procedure will be reviewed and revised as required. Revisions are required when there are changes in business conditions, scope of work, regulatory requirements or when deficiencies become known.

## DOCUMENT AND RECORD CONTROL

All records and generated as for this procedure will be stored on J-AAR or HCSS servers indefinitely.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10.1: Traffic Protection</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## TRAFFIC PROTECTION PLAN PROCEDURE

### PURPOSE

J-AAR Excavating has adopted this policy to ensure the ongoing health and safety of our employees, clients, visitors, contractors, subcontractors, and the public at large. During construction operations, project worksites may present site-specific hazards that must be avoided by motor vehicles, workers on foot and pedestrians. J-AAR shall work to ensure that all hazards are identified and mitigated, controlled, or eliminated using appropriate control measures, including the creation of appropriate traffic control plans, and routes

### SCOPE

J-AAR Excavating shall ensure that all construction projects and worksites are managed in an appropriate fashion, and that a Traffic Control Plan will be created for each project and/or site.

J-AAR Traffic Control Plans shall provide a comprehensive plan for the placement of materials, protective barriers, signage, Signalers, traffic control devices, and appropriate routes for motor vehicles, and foot paths for pedestrians and workers on foot.

All J-AAR staff, contractors and subcontractors will be provided with a copy of the Traffic Control Plan prior to the commencement of the project. At all times, the Traffic Control Plan must be adhered to. In the event that any hazard exists, the hazard should be reported to management immediately.

J-AAR Excavating shall ensure:

- Roadways and walkways are kept clear at all times;
- Barriers are utilized in an effort to ensure that access is controlled and limited; and
- Speed limits are posted and communicated appropriately.
  - Generally, construction worksites shall have a maximum speed limit of 25 km/h.

#### Signage

J-AAR Excavating shall ensure that appropriate signage is used to indicate speed limits, direct traffic, identify potential hazards, and provide PPE requirement information. J-AAR Excavating will ensure that all signage is clean, easily understood, and located in high-visibility locations to maximize their efficacy.



#### Traffic Control Devices

J-AAR Excavating may utilize various forms of Traffic Control Devices as appropriate, including, but not limited to:

- Road blocks;
- Traffic pylons/cones; and
- Traffic barrels.

#### Work Zone Protection

J-AAR Excavating may utilize various forms of Work Zone Protection as appropriate, including, but not limited to:

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 10.1: Traffic Protection</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## TRAFFIC PROTECTION PLAN PROCEDURE

- Wooden road-block barriers;
- Sand bag barriers;
  - Concrete barriers; and
  - Various form of fencing.

### Signaler

Where public motor vehicle traffic is expected to be disrupted as a result of the project, J-AAR Excavating may utilize Signalers to assist in the direction of traffic. J-AAR Excavating shall ensure that drivers are warned in advance that they will be entering a construction area where a Signaler is present, by placing appropriate signage ahead of the area. Signalers will:

- Be required to wear high-visibility clothing and appropriate PPE. The high-visibility clothing must make the Signaler visible from a minimum of 1,000 feet;
- Use appropriate signage to direct traffic, using recognized symbols for "Stop" and "Slow"; and
- Be provided with appropriate forms of communication to assist them in the direction of traffic.

### Training the TCP


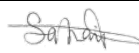
Supervisors must give oral and written instructions to TCP's for their site-specific duties. In order to help complete that task:

- Review J-AAR's Traffic Control plan
  - Complete J-AAR's Traffic Protection plan and have them sign
- Remind them to:
- Always face traffic.
  - Plan an escape route.
  - Wear personal protective equipment.
  - Maintain proper communication with other TCPs.
  - Stay alert at all times.
  - Be courteous.

### Construction Equipment onsite

Traffic control measures should also be used for construction traffic at the work site to prevent injury to workers or the public.

- Vehicles and machines should be operated in reverse as little as possible. If this is impossible measures should be taken to prevent workers or the general public from entering into the path of the reversing vehicle.
- If a person could be endangered by a reversing vehicle, a signaler must be used.
- If a piece of equipment or vehicle may have the potential of encroaching the minimum allowable distance to an overhead wire, the following procedures are required:
  - Arrange for a competent signaler to assist the operator/driver.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 10.1: Traffic Protection</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## TRAFFIC PROTECTION PLAN PROCEDURE

- Notify the operator/driver (in writing on plan) of the electrical hazard before work starts
- Provide enough warning devices / signs in the vicinity of the hazard so at least one is always visible to warn the operator.
- Ensure a sign or sticker is visible at the operator's station (i.e. cab) warning of the hazard.
- Review the "Electrical Hazard Plan" with operators, workers and subcontractors affected on the project. Everyone signs the plan. Use the HCSS Forms app. Provide hard copies.
- Ensure that affected workers and operators are familiar with these procedures and will not proceed with the work until they are fully implemented.

### RESPOSIBILITIES

#### Senior Management

- Review this procedure at least annually
- Ensure J-AAR operates in compliance with all applicable legislation and requirements

#### Managers

- Assist in the creation of location specific traffic control plans
- Follow up on deficiencies noted in the plan by supervisors
- Ensure TCP's and signalers are competent

#### Supervisors



- Ensure all TCP's and signalers are competent
- Ensure all traffic related hazards are controlled with the TCP
- Ensure all required workplace parties are aware of the TCP
- Report any deficiencies in the TCP to your manager
- Appoint and/or request an adequate number of workers to act as TCP's /Signalers
- Provide all signalers and TCP's adequate written and oral instructions to performs their tasks safely and as a competent person
- Ensure all required PPE is available and used correctly

#### Workers

- When acting as a TCP/Signaler do not perform any other tasks
- Participate in required training
- Review the TCP
- Report any issues with the TCP with your supervisor
- Use all required PPE correctly

#### Health and Safety Team

- Assist in the development of the traffic control plans
- Ensure training is sufficient in the protection of all J-AAR employees
- Ensure TCP is carried out correctly during site inspections

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10.1: Traffic Protection</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 4	

## TRAFFIC PROTECTION PLAN PROCEDURE

### Health and Safety Committee/Rep


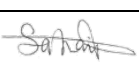
- Review policies and procedures as required

### Subcontractors

- Review policies and procedures as required
- Alert J-AAR supervision to any large scheduled deliveries
- Have all drivers abide by the TCP

### Visitors

- Review policies and procedures as required

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10.2: Workplace Violence and Harassment Assessments</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS

### PURPOSE

This section outlines J-AAR's workplace violence and harassment policy and program. It details the responsibilities of the employer and gives information and instructions to workers who may be exposed to violence and/or harassment.

### DEFINITIONS

#### Workplace Violence:

- The exercise of physical force by a person against a worker, in a workplace, that causes or could cause physical injury to the worker,
- An attempt to exercise physical force against a worker, in a workplace, that could cause physical injury to the worker.
- A statement or behavior that it is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker.

Examples of workplace violence include:

- verbally threatening to attack a worker;
- leaving threatening notes at or sending threatening e-mails to a workplace;
- shaking a fist in a worker's face;
- hitting or trying to hit a worker;
- wielding a weapon at work;
- throwing an object at a worker;
- sexual violence against a worker;
- kicking an object the worker is standing on such as a ladder or
- trying to run down a worker using a vehicle or equipment.

#### Domestic Violence


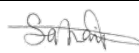
A person who has a personal relationship with a worker- such as a spouse or former spouse, current or former intimate partner or a family member- may physically harm, or attempt or threaten to physically harm, that worker at work. In these situations, domestic violence is considered workplace violence.

#### Workplace Harassment:

- engaging in a course of vexatious comment or conduct against a worker in a workplace that is known or ought reasonably to be known to be unwelcome or;
- workplace sexual harassment

#### Workplace sexual harassment:

- engaging in a course of vexatious comment or conduct against a worker in a workplace because of sex, sexual orientation, gender identity or gender expression, where the course of comment or conduct is known or ought reasonably to be known to be unwelcome, or;

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 10.2: Workplace Violence and Harassment Assessments</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS

- b) making a sexual solicitation or advance where the person making the solicitation or advance is in a position to confer, grant or deny a benefit or advancement to the worker and the person knows or ought reasonably to know that the solicitation or advance is unwelcome

Workplace harassment can involve unwelcome words or actions that are known or should be known to be offensive, embarrassing, humiliating or demeaning to a worker or group of workers. It also includes behavior that intimidates isolates or even discriminates against the targeted individual(s).

This may include:

- making remarks, jokes or innuendos that demean, ridicule, slander, intimidate, or offend;
- displaying or circulating offensive pictures or materials in print or electronic form;
- bullying;
- repeated offensive or intimidating phone calls or emails;
- inappropriate sexual touching, advances, suggestions or requests.

### What isn't workplace harassment?

Reasonable action or conduct by an employer, manager or supervisor that is part of their normal work functions would not normally be considered workplace harassment. This is the case even if there are unpleasant consequences for a worker. Examples include:


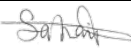
- changes in work assignments;
- scheduling;
- job assessment and evaluation;
- workplace inspections;
- implementation of dress codes or PPE and
- disciplinary action.

Differences of opinion or minor disagreements between co-workers would also not generally be considered workplace harassment.

In addition, any behavior that would meet the definition of workplace violence would not be considered workplace harassment.

### Workplace Risk Assessments

- Management will review and assess the risks of workplace violence that may arise from the nature of the workplace, type of work or conditions of work.
- Take into account the circumstances of J-AAR Excavating Limited workplaces and circumstances common to other similar workplaces.
- Develop measures and procedures to control identified risks that are likely to expose a worker to workplace violence and harassment.
- Advise the J.H.S.C., or the Health and Safety Representative of the risk assessment results.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 10.2: Workplace Violence and Harassment Assessments</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS

- Repeat the assessments as often as necessary to ensure the workplace violence/harassment policy and program effectively protects workers.

Management will involve the Joint Health and Safety Committee in developing written programs and procedures, regarding workplace harassment which addresses:

- o the reporting of incidents;
- o the investigation process;
- o how the investigation information will be kept confidential, except for the purposes of taking corrective action or required by law;
- o training under the programs and procedures; and
- o an annual review of the programs and procedures.

## PROCEDURES


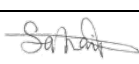
All workers must consider the following safe work procedures:

### Mobile Crews (Worksites)

- Ensure you are able to call for help. Use 2-way radios and/or cell phones in an emergency.
- Keep vehicles well maintained.
- Park all vehicles/equipment in designated safe areas. Inspect as often as necessary.
- Keep trailers locked when not in use. Maintain all lighting if possible.
- Designate a safe meeting area for all workers in case of emergency.
- Work in groups when possible. Work the same operating hours as other workers. If working alone, follow written safety procedures for working alone.
- Perform regular jobsite inspections.
- Review any potential jobsite risks from tender documents and/or client.
- Report all suspicious persons to supervisor.

### Main Office

- Maintain outside lighting and keep paths, walkways and parking areas clear of obstructions.
- Maintain visitor / public entrances.
- Keep all doors not in use locked or secure.
- Maintain security alarm and security cameras.
- Front reception area should be staffed during business hours. Lock visitor doors when reception is unavailable. Keep all windows, doors and sightlines clear.
- All visitors must report to front reception desk and only enter employee areas of the building when escorted by an employee.
- Keep all cash and other valuable goods locked and hidden.
- Designate a safe meeting room(s) for employees during emergency.
- Keep all lines of communication operating- 2-way radios, phones
- Work in groups. Maintain regular operating hours with other employees. If working alone, lock all non-essential doors. Follow working alone policy.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section 10.2: Workplace Violence and Harassment Assessments</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS

### Drivers / Transport

- Passengers are restricted to company employees or those satisfactory to the driver. The general public is not given access to vehicles.
- Any cash/documents should be kept in a locked vehicle and handed in at the end of the shift.
- Maintain communication with other employees (i.e. dispatch, foreman) with 2-way radios or cell phones. If working alone, follow policy.
- Keep vehicles regularly maintained.
- Park in designated, well-lit areas.
- If drivers are to work in high-risk locations, information will be given by office/dispatch prior to job start.
- Never leave your vehicle / machine unlocked at night or on breaks.

### Emergency Response Plan- Summoning Assistance

#### Workers shall:

- Immediately call for assistance if they are a victim of or witness workplace violence. If alone, call for 9-1-1 police assistance, followed by a call to your supervisor. If working in a crew, call the supervisor.
- EMERGENCY PHONE NUMBERS shall be posted at all worksites.

#### Supervisors shall:

- Call 9-1-1 and get assistance from the police in a violent situation. If required, call for ambulance services as well.
- Keep all other employees in a safe area away from the parties involved.
- Do not attempt to physically separate the parties involved if the violent behavior is on-going.
- Safely remove from the area anything that could be used as a weapon.
- Provide all necessary information to police if required.
- Report the incident to senior management as soon as possible.


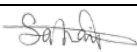
### Reporting Workplace Violence / Harassment

All workers who have been the victim of or witnessed workplace violence or harassment shall report the following information to their supervisor:

- Date, time of the incident;
- Location of the incident;
- Who were the parties involved;
- Description of the altercation/incident. Contributing factors. Physical or verbal issues. Outcome.
- Any information about other witnesses;
- Possible recommendations for prevention.

**NOTE:** If the Supervisor is the alleged harasser, then the victim can report to a Manager, Owner, the Ministry of Labour or Police.



 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10.2: Workplace Violence and Harassment Assessments</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS

### Investigating Workplace Violence / Harassment

Management will investigate all matters involving violence or harassment in the following manner:

- Supervisors will report the incident to management.
- Parties involved will meet to discuss the incident. Corrective actions and solutions will be recommended. (Police actions may determine outcomes).
- If the parties are satisfied with management's response, no further action will be taken. The written investigation and corrective actions will be filed.
- If the parties are not satisfied with management's actions, the Ministry of Labour may be called upon to investigate and offer recommendations.
- The written investigation and any corrective actions shall be available to both the victim and alleged harasser. Privacy concerns and confidentiality will be respected when writing and reviewing reports.

NOTE: Third-party agencies specializing in workplace violence and harassment may be called in to investigate.

All revisions to the program to prevent any future recurrences of the reported incident will be given to the J.H.S.C. or Health and Safety Representatives.

### Information about a Person with a History of Domestic Violent Behaviour

The Occupational Health and Safety Act clarifies that employers and supervisors must provide workers with information, including personal information, related to a risk of workplace violence from a person with a history of violent behavior.

#### However, this duty is limited and applies only when the:

- worker can be expected to encounter the violent person in the course of his or her work and;
- risk of workplace violence is likely to expose the worker to physical injury.



Employers and supervisors must also not disclose more information than is reasonably necessary for the protection of a worker from physical injury.

The employer has to take into account a person's right to privacy under certain laws in addition to a workers' right to be informed of workplace violence risks under the O.H.S.A.

It is the policy of J-AAR Excavating to seek legal advice to comply with this regulation when this type of information is discovered or reported.

### Domestic Violence

Under the O.H.S.A. an employer must take every precaution reasonable in the circumstances for the protection or workers when they are aware, or ought reasonably to be aware, that domestic violence may occur in the workplace, and that it would likely expose a worker to physical injury.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section 10.2: Workplace Violence and Harassment Assessments</b>		
	APPROVED BY: Sarhan Abu-Kwiek	COR Elements: 13, 8, 9	
	APPROVAL DATE: 02/24/2023	DATE OF ORIGIN: 02/02/2023	REVISION # 1
	SIGNATURE: 	# OF PAGES: 6	

## WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS

Workers can report their concerns to their employer if they fear domestic violence may enter the workplace.

Employers must be prepared to investigate and deal with these concerns on a case by case basis.

In developing a plan, employers and workers may be able to work with the police, courts or other organizations who may already be involved.

It is the policy of J-AAR Excavating to seek legal advice to comply with this regulation when this type of information is discovered or reported.

### Work Refusals

Under the O.H.S.A. a worker can refuse to work if he/she has reason to believe they may be endangered by workplace violence. A worker may refuse work if he/she reasonably determines that a threat to exercise physical force could cause injury to the worker.

However, work cannot be refused on the grounds of workplace harassment.

The Act sets out a specific procedure that must be followed in a work refusal. It is important for employers, supervisors, workers, J.H.S.C. and safety representatives to understand and follow this procedure.

### REVIEW

Management and the J.H.S.C. will review the violence and harassment policy and program annually.

### ENFORCEMENT

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by J-AAR Excavating.

### DOCUMENT AND RECORD CONTROL

All documents and records generated as part of this procedure will be stored on HCSS/J-AAR's servers indefinitely. Any hard copies generated will be stored at J-AAR's head office for two years after project completion.

### REQUIREMENTS

#### Training:

All employees will undergo a review and understanding of the policy and program. This will occur through the new employee orientation. Initially this was completed at the annual safety meeting.

#### Legislation:

Occupational Health and Safety Act, Section 32



## Contractor Package

CONTRACTOR CONTACT INFORMATION			
Contract Partner Position	Name	E-mail	Contact #
Project Manager			
Supervisor			
Foreman/Lead Hand			
Safety Representative (5 workers and over)			
Emergency Contact Person			

REQUIRED SUB CONTRACTOR AND TRADE CONTRACTOR SAFETY SUBMITTLES PRIOR TO ONSITE TASK ACTIVITIES
<input type="checkbox"/> Contractor H&S Commitment contract document <input type="checkbox"/> MOL Form 1000 <input type="checkbox"/> WSIB Clearance Certificate for Applicable Province <input type="checkbox"/> WSIB Injury Summary <input type="checkbox"/> Contractor Liability Insurance. J-AAR and the client will be named holders of the policy <input type="checkbox"/> Contractor Safety Program, with a signed and dated H&S policy. If under 5 workers, J-AAR "FORM B- Under 5 Workers" must be completed <input type="checkbox"/> Violence Harassment policy signed and dated <input type="checkbox"/> Library of safe work procedures signed by a company official <input type="checkbox"/> Library Hazard Assessments signed by company official <input type="checkbox"/> WHMIS 2015 SDS sheets for products delivered to the name of the project stated above <input type="checkbox"/> Is the organization COR registered with a valid registration? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Are you a WSIB Excellence Program Member? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Any type of equipment or machine owned or rented shall have a valid Annual Inspection sticker over 10 hp



# Contractor Package

## TRAINING, EDUCATION AND PROJECT JOB RULES

### PROJECT ORIENTATION

Site-specific orientation for J-AAR team members, supplied labour, and contract partners is a requirement on all J-AAR projects. This short site-induction is required of all workplace parties before any field work commences.

Changes to the orientation schedule is at the discretion of the J-AAR site superintendent.

A worker shall have a copy of their minimum required ROT's (Record of training) with them to enable their ROT to be attached to their orientation document.

Contracted partners shall give the J-AAR project management team 24 Hour notice to assist with orientation scheduling.

Workers who do not submit the required minimum ROT will not be allowed to do work.

### RECORD OF TRAINING (ROT)

A worker who is unable to submit their minimal ROT (Record of Training) will not be authorized to work on any J-AAR project site.

ROT certificates or cards must show the training was facilitated by a recognized organization.

#### (1) Minimum record of training (ROT) for ALL workers:

- MOL (Ministry of Labour) 4 Step Awareness or equivalent
- WHMIS 2015

#### (2) In addition to above, Supervisor minimum required training:

- Competent Supervisor training (FORM A must also be completed)
- First Aid training

### WORKING AT HEIGHTS

A worker exposed to Ontario training regulation 297/13 for working at heights, and not complying with the regulation and J-AAR job rules, shall come under the J-AAR zero tolerance procedures for noncompliance.

There are circumstances when a worker may not need a working at heights certificate. This can be determined by the workers employer and the J-AAR project team, keeping in mind the Ontario provincial regulation sub section 26.2 (1) of O.Reg.213/91 for construction projects.

The J-AAR project management team will review the subcontractor's hazard assessment to determine if the contractor worker requires working at heights training.

A contractor and or their sub and or trade contractor worker who is not authorized to work at heights due to the fact of a hazard assessment, and reveals there is no risk of a fall, but are found to be working at heights or having a risk of a fall, shall fall under the J-AAR zero tolerance policy for noncompliance.

The J-AAR project team shall refer to the J-AAR Health & Safety program or any bulletin sent out by the J-AAR president regarding disciplinary protocols.



## Contractor Package

### J-AAR DAILY JOB HAZARD ASSESSMENT (JHA)

The Job Hazard Assessment (JHA) may recognize an existing hazard or hazards. JHA's shall be completed in full by a competent person who can assess pre-job hazards and implement the appropriate controls to mitigate the probability of an incident occurring and be able to rate the risk, a worker may take daily.

It's imperative for the J-AAR partner and if contracted, their sub or trade contractor, to ensure they supply a competent person to initiate a mindset of respect for each other's, occupational, health, safety, and wellness within their team with a specific need to communicate unsafe acts and conditions without retribution from others. Supervisors who champion safe work and best practices can and will reduce the possibilities of any negative incident occurrences.

J-AAR expects this person to be competent in exercising safety hierarchy of controls to eliminate an incident occurrence.

The JHA shall be electronically submitted to the J-AAR project team at the end of every shift.

It is important to attach the daily JHA to any incident report, this may support the supervisors' instructions and further any investigation into who, what, why, where and when an event occurs.

In the event site conditions change during the day's tasks, the competent person shall stop work described in the JHA and reevaluate the existing controls to mitigate the probability of the event to reduce the potential risk posed to a worker.

It is the workers responsibility to inform their supervisor of any added risk not found in the original JHA, during the JHA review. Once the reevaluation is complete, it can be communicated to their work crew or crews using a toolbox talk to facilitate the change.

The supervisor shall notify their employer and the J-AAR project team of a potential change to the employer's hazard assessment when the JHA dictates a review and change to any safe work procedure and the organization's hazard assessment.

### SAFE WORK PROCEDURE AND HAZARD ASSESSMENTS

In the event a sub or trades contractors who entered a contract with J-AAR hires another sub-contractor or trades contractor, it will be the responsibility of the contractor hired by J-AAR to ensure their contracted sub and or trade contractors health and safety management system is of a standard recognized by legislation and the J-AAR Health and Safety Program. It's important that the organization's library of safe work procedures and hazard assessments are reviewed, complete, signed, and submitted to the J-AAR project team.

#### **Note:**

A **JHA** does not take the place of a **HAZARD ASSESSMENT**. Employers shall have a safe work procedure accompanied by a hazard assessment as well as daily JHA's.

### Job Hazard Analysis (JHA) PROCEDURE

- All sub and trade contracted crews will complete a JHA to reflect the tasks to complete the job
- Multiple workers completing the same tasks within the same hazardous environment can sign one daily hazard JHA
- JHA is live document that can be altered as conditions change
- Submit signed JHA's to the J-AAR project team the end of every shift
- J-AAR management team can and will review the signed JHA submission and give guidance if required.



# Contractor Package

## MADATORY PERSONAL PROTECTIVE EQUIPMENT

All workers must have the following minimal PPE (Personal Protection Requirements)

- Hard hat (CSA Approved O. Reg.213/91. s.22(1))
- Safety boots (CSA Approved) O. Reg.213/91. s.23(1)(2) and O. Reg.345/15. s
- Safety Glasses (CSA Approved) O. Reg.213/91. s.24
- Vest (CSA Approved)
- Skin Protection O. Reg.213/91. s.25
- **According to the task (specify the task):**
  - Hearing Protection
  - P100 Respiratory Mask
  - N95 Respiratory Mask
  - Full Face Shield/Visor
  - Appropriate gloves for the specific task
  - Personal gas monitor and extraction equipment Confined Space Work)
  - Fall Protection (CSA Approved) O. Reg.145/00. S. 12: O. Reg.85/04 s. 4.: O. Reg.345/15. s.4.

## GLOVES POLICY

Workers will have approved manufacturers gloves acceptable to complete their task with minimal risk to the worker.

Gloves are not always worn; however, they must be readily accessible. The JHA, hazard assessment, and safe work procedure will determine the type of glove required for the task to be performed.

## DISCIPLINARY MEASURES

A worker who is in violation of their employers and J-AAR health and safety programs will receive disciplinary action. Zero tolerance is implemented for:

1. Working at Heights noncompliance
2. Trenching and Excavation noncompliance
3. Violence and Harassment in the workplace noncompliance
4. Any issue where a worker is **Not Fit for Duty** (Drug, Alcohol, or any other medical issue.)
5. Locked out Tagged out noncompliance, (Any trade or contractor contracted to do work is in noncompliance to prevent any source of unwanted energy during a work task that may create harm to a worker)
6. Confined Space noncompliance

## J-AAR SAFETY BOARD AND REFERENCE MATERIAL / SAFETY SUPPLIES

1. J-AAR Notice of Project
2. J-AAR Health and Safety Policy Statement and Safety Program located at an easily accessible location
3. J-AAR Site Specific Health and Safety Program located at an easily accessible location
4. J-AAR WHMIS SDS's located at an easily accessible location
5. J-AAR Emergency preparedness sign in and sign out for workers and visitors
6. J-AAR Traffic Management Plan (as required)
7. J-AAR Violence and Harassment Policy Statement
8. J-AAR JHSC members, project Safety Representative, and workers trades committee names and contact numbers
9. J-AAR emergency evacuation procedures with muster point location
10. Emergency Contact numbers for Police, Fire, Ambulance, Utilities
11. J-AAR, First Aid Kit, and First Aiders names, contact numbers and nearest hospital location with directions
12. J-AAR Change of Supervision permit (as required)



## Contractor Package

13. Client advisement of any designated substance (If aware)
14. MOL Contractor Form 1000
15. MOL Occupational Health and Safety Act and Regulations for Construction Projects
16. MOL Employment Standards
17. MOL inspector field visits
18. WSIB form 82 "In Case of Injury Poster"
19. WSIB Regulation 1101

### **ONSITE FIRST AID**

There is a first aid station located at the J-AAR site trailer or other designated location with a list of first aiders posted on the H&S board.

### **PERFORMING WORK WITHOUT DIRECT J-AAR SUPERVISION**

Trade and sub-contractors performing work without J-AAR supervision, are required to complete a Change of Supervision permit approved by the J-AAR project team before anyone is authorized to do any work. Only one contractor can work without J-AAR supervision. If there are multiple contractors, a J-AAR team member competent to supervise and instruct trade and sub trade contractors shall be always present.

The sub or trade contractor must supply a competent supervisor who has the three basic Record of Training (ROT)- Worker Awareness, WHMIS, First Aid - requirements plus the MOL 5 step awareness, Basics of Supervision, or letter from their employer stating they are competent.

All workers who have a valid JHSC and Standard First aid certificate shall present it during orientations, so they can assist with a proactive safe culture and are able to attend to an injured worker with initial first aid requirements.

### **TOOLBOX MEETINGS**

Weekly toolbox meetings are required and must be held by the J-AAR team and the subcontractor's supervisor with their workers. A copy of the meeting with attendee signatures shall be submitted weekly to the J-AAR project team.

### **MACHINERY & EQUIPMENT INSPECTIONS/TRAINING**

Equipment operators must be competent to operate their machines and or equipment. Annual inspection dates for all equipment over 10HP must be in place prior to use. Machines rented or otherwise must have a valid annual inspection sticker on the machine.

### **CRANES**

All cranes performing work for J-AAR on a project (ie. boom-truck, mobile crane, tower crane etc.) must have a certificate of compliance.

This certificate must be provided to the J-AAR project team. In addition, any modified hoisting device or any lifting equipment used by the sub and or trade contractor must provide a manufacturers acceptance with an engineer's stamp regarding the modification.

### **WASHROOMS/LUNCHROOMS**

Washrooms will be respected by all users. People not respecting the projects hygiene facilities are subject to discipline.



## Contractor Package

Garbage bins will be located at areas for all light waste such as drinking containers, lunch wraps and light waste materials. Leaving garbage around the project will not be tolerated.

Contractors will not store their materials, equipment, or tools in a lunchroom, or site trailers.

### **HOUSEKEEPING/STAGING/DELIVERIES**

All waste must be disposed of on a regular basis. Contractors and their Subcontractors shall ensure this is performed at the end of each shift. All subcontractors must perform housekeeping and keep their work areas organized and free of waste and debris.

Sub and trade contractors will participate in cleaning blitzes every Friday and daily when required. Failure to do so may result in extra charges to our contractor for supplied workers to do their contracted work.

Ensure you discuss placement of materials with the site supervisor before any delivery of equipment, supplies, and machinery.

When you stage material, ensure materials, equipment and supplies are stored perpendicular and parallel with each other. This will give more space and ease of movement around these obstacles

### **JHSC SITE COMMITTEE**

It is the responsibility of J-AAR to establish a health and safety committee and workers trade committee as prescribed. Each employer will provide a management or worker representative when requested as per legislation. Subcontractors may be required to attend a monthly meeting and an occasional inspection upon request to a maximum of once a month.

J-AAR will notify you in advance of the meetings and/or inspections.

### **TOOLS, EQUIPMENT AND LIFTING DEVICE INSPECTIONS**

An inspection for tools, extensions, slings, and handling equipment must be done at least annually. Chains, slings and lifting accessories must be permanently identified, clearly indicating the safe lifting capacity. If this identification is missing or illegible, the equipment will be removed from site immediately.

### **SUB AND OR TRADE CONTRACTOR'S SUBCONTRACTOR MANAGEMENT**

A sub or trade contractor having a contract with J-AAR are responsible for any of their subcontractors they bring to a J-AAR site to perform all or part of their contracted scope of work. They shall be responsible to provide all the required safety submittals asked for during this kickoff meeting, and ensure their subcontractors adhere to the J-AAR Environmental, Occupational Health and Safety Programs and the Occupational Health and Safety Act and Regulations for construction projects.

### **DAILY WORKER AND VISITOR SIGN IN**

Contractor's employees (and any of their sub-contractors) shall sign-in onsite each morning before work commences.

### **SUB AND OR TRADE CONTRACTOR ENVIRONMENTAL OCCUPATIONAL HEALTH & SAFETY PERFORMANCE**





## Contractor Package

During the execution of the work, J-AAR's project team conduct planned and unplanned workplace inspections and or visits to any J-AAR project to ensure the J-AAR health and safety management system is performing and respected by J-AAR team members, supplied labour and our sub and trade contractors. At J-AAR this is called our Management Review and Management of Change Program.

These inspections are documented, archived with corrective actions to solve noncompliance. Measures will be given and required if a sub and or trade contractor does not meet the J-AAR Occupational Health & Safety Management System.

### CONTRACTOR SAFETY COMMITMENT & ACKNOWLEDGEMENT

Contractor Project Manager / Sr. Manager

Name: \_\_\_\_\_

Telephone: \_\_\_\_\_

E-mail: \_\_\_\_\_

I hereby confirm that I am aware of and understand my Environmental, Occupational Health and Safety responsibilities and the required J-AAR health and safety requirements discussed in this document.

I fully understand and will comply with the legislated responsibilities and requirements in the Occupational Health and Safety Act, all applicable Regulations and those required by the J-AAR safety management system.

CONTRACTOR PROJECT MANAGER / SR. MANAGER:

SIGNATURE: \_\_\_\_\_



## CONTRACTOR SAFETY PERFORMANCE EVALUATION

**Contractor:**

**Project:**

**Project Manager or Designate:**

	Unsatisfactory	Satisfactory	Very Good	Exceptional
1. Did all workers attend safety orientation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Rate effectiveness of daily hazard assessments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Were effective weekly safety meetings held?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Rate workers competency for assigned work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Did workers complete the work in a safe manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Compliance with safe work practices/ procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Compliance with program permit requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Rate equipment and tool condition and availability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Required PPE available and worn by workers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Rate overall housekeeping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Incidents reported, and investigated a timely manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Rate hazard identification and reporting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Effective corrective/ preventive actions developed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corrective and preventive actions implemented and communicated in a timely manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Rate field execution of JSA, safety meetings etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Rate scope plan and proactive approach to safety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Rate response to safety direction/guidance given.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Rate monitoring of company's subcontractors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Rate the overall compliance audit results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Rate overall safety performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Should this Subcontractor remain on the Approved Contractor list? Provide reason below.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. What stands out most about this subcontractor?				

### Management Feedback

Please provide further information on exceptional or unsatisfactory results and other relevant information.

Name:

Signature:



---

Emergency Roles Project No. \_\_\_\_\_

Project Name – Project Location

---

Rescue Team	Name	Position	Contact Number	Role
Supervisor:				
1.				
2.				
3.				
4.				
Alternates or Additional for large projects				
6.				
7.				
8.				
9.				
10.				





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Workplace Risk Assessments

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### WORKPLACE ASSESSMENTS

#### SCOPE -- VIOLENCE AND HARASSMENT

- Management will review and assess the risks of workplace violence that may arise from the nature of the workplace, type of work or conditions of work.
- Consider the circumstances of AAROC workplaces and circumstances common to other similar workplaces.
- Develop measures and procedures to control identified risks that are likely to expose a worker to workplace violence and harassment.
- Advise the J.H.S.C. of the risk assessment results.
- Repeat the assessments as often as necessary to ensure the workplace violence/harassment policy and program effectively protects workers.

Management will involve the Joint Health and Safety Committee in developing written programs and procedures, regarding workplace harassment which addresses:

- the reporting of incidents;
- the investigation process;
- how the investigation information will be kept confidential, except for the purposes of taking corrective action or required by law;
- training under the programs and procedures; and
- an annual review of the programs and procedures.

#### MEASURES AND PROCEDURES

All workers must consider the following safe work procedures:

##### Mobile Crews (Crushers etc....)

- Ensure you are able to call for help. Use 2-way radios and/or cell phones in an emergency.
- Keep vehicles well maintained.
- Park all vehicles/equipment in designated safe areas. Inspect as often as necessary.
- Keep trailers locked when not in use. Maintain all lighting if possible.
- Designate a safe meeting area for all workers in case of emergency.
- Work in groups when possible. Work the same operating hours as other workers. If working alone, follow written safety procedures for working alone.
- Perform regular jobsite inspections.
- Review any potential jobsite risks from tender documents and/or client.
- Report all suspicious persons to supervisor.

##### Pits / Scalehouses

- Maintain outside lighting and keep paths, walkways and parking areas clear of obstructions.
- Park in designated, well-lit areas.
- Keep all doors and gates locked when not in use.
- If possible, communicate and conduct business with visitors through windows/counters.
- Ensure you are able to call for help. Use phones, 2-way / CB radios in an emergency.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Workplace Risk Assessments

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

## WORKPLACE ASSESSMENTS

- Work in groups if possible. Work the same operating hours as other workers. If working alone, follow written company procedures.
- Keep cash and valuables locked and hidden.
- Check all security alarms are functioning.

### Main Office

- Maintain outside lighting and keep paths, walkways and parking areas clear of obstructions.
- Maintain signs for visitor / public entrances.
- Keep all doors locked when not in use.
- Maintain security alarm and security cameras.
- Front reception desk should be staffed at all times during work hours. Keep all windows, doors and sightlines clear.
- All visitors must report to front reception desk and only enter employee areas of the building when escorted/permitted by an employee.
- Keep all cash and other valuable goods locked and hidden.
- Designate a safe meeting room(s) for employees during emergency.
- Keep all lines of communication operating- 2-way radios, phones.
- Work in groups if possible. Maintain regular operating hours with other employees. If working alone, lock all non-essential doors. Follow working alone policy.

### Drivers / Transport

- Passengers are restricted to only other company employees or those satisfactory to the driver. The general public are not given access to vehicles.
- All cash should be kept in a locked vehicle and handed in at the end of the shift.
- All prices for delivery will be negotiated by the office before delivery.
- Maintain communication with other employees (i.e. dispatch, foreman, scalehouse...) with 2-way, CB radios or cell phones. If working alone, follow policy.
- Keep vehicles regularly maintained.
- Park in designated, well-lit areas.
- If drivers are to work in high-risk locations, information will be given by office/dispatch prior to job start.
- Never leave your vehicle / machine unlocked at night or on breaks.

### Emergency Response Plan- Summoning Assistance

#### Workers shall:

- Immediately call for assistance if they are a victim of or witness workplace violence. If needed, call for 911 police assistance, followed by a call to your supervisor.
- EMERGENCY PHONE NUMBERS shall be posted at all worksites.

#### Supervisors shall:

- Call 911 and get assistance from the police in a violent situation. If required, call for ambulance services as well.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Workplace Risk Assessments

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### WORKPLACE ASSESSMENTS

- Keep all other employees in a safe area away from the parties involved.
- Do not attempt to physically separate the parties involved if the violent behavior is on-going.
- Safely remove from the area anything that could be used as a weapon.
- Provide all necessary information to police if required.
- Report the incident to senior management as soon as possible.

#### Reporting Workplace Violence / Harassment:

All workers who have been the victim of or witnessed workplace violence or harassment shall report the following information to their supervisor:

- Date, time of the incident;
- Location of the incident;
- Who were the parties involved;
- Description of the altercation/incident. Contributing factors. Physical or verbal issues. Outcome.
- Any information about other witnesses;
- Possible recommendations for prevention.

NOTE: If the Supervisor is the alleged harasser, then the victim can report to a Manager, Owner, the Ministry of Labour or Police.

#### Investigating Workplace Violence / Harassment

Management will investigate all matters involving violence or harassment in the following manner:


- Supervisors will report the incident to management.
- Parties involved will meet to discuss the incident. Corrective actions and solutions will be recommended. (Police actions may determine outcomes).
- If the parties are satisfied with management's response, no further action will be taken. The written investigation and corrective actions will be filed.
- If the parties are not satisfied with management's actions, the Ministry of Labour may be called upon to investigate and offer recommendations.
- The written investigation and any corrective actions shall be available to both the victim and alleged harasser. Privacy concerns and confidentiality will be respected when writing and reviewing reports.

NOTE: Third-party agencies specializing in workplace violence and harassment may be called in to investigate.

- All revisions to the program to prevent any future recurrences of the reported incident will be given to the J.H.S.C.

#### Information about a Person with a History of Domestic Violent Behaviour

The Occupational Health and Safety Act clarifies that employers and supervisors must provide workers with information, including personal information, related to a risk of workplace violence from a person with a history of violent behavior.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Risk Assessments</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 11	

## WORKPLACE ASSESSMENTS

However, this duty is limited and applies only when the:

- worker can be expected to encounter the violent person in the course of his or her work and;
- risk of workplace violence is likely to expose the worker to physical injury.

Employers and supervisors must also not disclose more information than is reasonably necessary for the protection of a worker from physical injury.

The employer must consider a person's right to privacy under certain laws in addition to a workers' right to be informed of workplace violence risks under the O.H.S.A.

It is the policy of AAROC AGGREGATES LTD. to seek legal advice to comply with this regulation when this type of information is discovered or reported.

### Domestic Violence

Under the O.H.S.A. an employer must take every precaution reasonable in the circumstances for the protection or workers when they are aware, or ought reasonably to be aware, that domestic violence may occur in the workplace, and that it would likely expose a worker to physical injury.

Workers can report their concerns to their employer if they fear domestic violence may enter the workplace.

Employers must be prepared to investigate and deal with these concerns on a case by case basis. In developing a plan, employers and workers may be able to work with the police, courts or other organizations who may already be involved.

It is the policy of AAROC AGGREGATES LTD. to seek legal advice to comply with this regulation when this type of information is discovered or reported.

### Work Refusals

Under the O.H.S.A. a worker can refuse to work if he/she has reason to believe they may be endangered by workplace violence. A worker may refuse work if he/she reasonably determines that a threat to exercise physical force could cause injury to the worker.

However, work cannot be refused on the grounds of workplace harassment.

The Act sets out a specific procedure that must be followed in a work refusal. It is important for employers, supervisors, workers and the J.H.S.C. to understand and follow this procedure.

All work refusals will follow the procedure detailed in AAROC's HSE Program.

### REVIEW

Management and the J.H.S.C. will review the violence and harassment policy and program annually.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Workplace Risk Assessments

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

## WORKPLACE ASSESSMENTS


### REQUIREMENTS

**Legislation:**

*Occupational Health and Safety Act, Section 32*

**Training:**

All employees will undergo a review and understanding of the policy and program during new worker orientation.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Risk Assessments</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 11	

## WORKPLACE ASSESSMENTS

### PURPOSE - HAZARDS

Management will work closely with supervisors and the JHSC to recognize, assess, control and evaluate workplace hazards and risks as required.

### DEFINITIONS

#### Hazard

A hazard is any situation, thing or condition that may expose a person to risk of injury or occupational disease.

#### Risk

Risk is the chance or probability of a person getting harmed or experiencing an adverse health effect if exposed to a hazard.

### SCOPE

Risk assessment is the process where you:

- A) Recognize and identify hazards that can expose a worker to a risk of injury or disease
- B) Assess the risk of a worker getting harmed if exposed to the hazard
- C) Fix the problem by eliminating or controlling the hazard
- D) Resume work. Monitor and re-evaluate

A risk assessment must take into consideration the nature of the workplace, the type of work, the conditions of work at that workplace and the conditions of work common at similar workplaces.

AAROC shall, in consultation with the joint health and safety committee or the health and safety representative develop and maintain written measures to eliminate or control the hazards, and potential hazards, identified in a risk assessment.

#### Regulation 854/90:

- 5.1 (1) An employer shall conduct a risk assessment of the workplace for the purpose of identifying, assessing and managing hazards, and potential hazards, that may expose a worker to injury or illness.
- (2) A risk assessment must take into consideration the nature of the workplace, the type of work, the conditions of work at that workplace and the conditions of work common at similar workplaces.
- (3) The results of an assessment must be provided, in writing, to the joint health and safety committee or the health and safety representative, if any.
- (4) If no joint health and safety committee or health and safety representative is required at the workplace, the results of an assessment must be communicated to workers at the workplace and provided, in writing, to any worker at the workplace who requests them.
- (5) The requirement in subsection (1) to conduct a risk assessment is in addition to any specific assessments required by the Act or any Regulation made under it.
- 5.2 (1) An employer shall, in consultation with the joint health and safety committee or the health and safety representative, if any, develop and maintain measures to eliminate, where practicable, or to

## Section: Workplace Risk Assessments

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

## WORKPLACE ASSESSMENTS

control, where the elimination is impracticable, the hazards, and potential hazards, identified in a risk assessment conducted under subsection 5.1 (1).

(2) The measures referred to in subsection (1) shall be put in writing and shall include each of the following, as applicable and reasonable in the circumstances:

1. Substitution or reduction of a material, thing or process.
2. Engineering controls.
3. Work practices.
4. Industrial hygiene practices.
5. Administrative controls.
6. Personal protective equipment.

(3) Personal protective equipment shall only be used as a measure if the measures referred to in paragraphs 1 to 5 of subsection (2) are not obtainable, are impracticable or do not eliminate or fully control hazards and potential hazards.

**5.3** (1) The risk assessment required by section 5.1 must be reviewed as often as necessary and at least annually.

(2) When conducting the review, the employer shall ensure that,

- (a) new hazards or new potential hazards are assessed;
- (b) existing hazards or potential hazards that have changed are re-assessed; and
- (c) the measures required by section 5.2 continue to effectively protect the health and safety of workers.

(3) Subsections 5.1 (3) and (4) and section 5.2 apply with necessary modifications in respect of any new hazards and potential hazards and any existing hazards or potential hazards that have changed.

### Hazard Recognition and Identification

#### How do you recognize a hazard...?

- Make observations onsite
- Look at inspections
- Get worker response / comments
- Know or check legislation
- Client or owner input
- HSE Program
- Experience

#### There are different types of hazards to think about....

- **Chemical-** gases, vapours, liquids, solids, plasma, dust, fume or mist.
- **Biological-** living organisms, such as bacteria, viruses, mould, parasites and fungi.
- **Physical-** noise, vibration, electricity, heat and cold, pressure and radiation.
- **Ergonomic-** poorly designed equipment or work process, strain on the body.
- **Psychosocial-** risks of crime, violence / harassment, production pressures.
- **Safety-** housekeeping, falls, pinch points, moving machinery, fire, explosion.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Workplace Risk Assessments

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### WORKPLACE ASSESSMENTS

There are 5 factors that can contribute to hazards at a workplace....

- People – training, communication, education, hygiene practices
- Equipment – protective equipment, maintenance, condition
- Materials – correct use, adequate supply, storage
- Environment – noise, air quality, lighting, physical layout, housekeeping.
- Process – work design, flow, reporting requirements, policies and procedures.

#### Assess and Prioritize the Risks

Ranking or prioritizing hazards is one way to help determine which hazard is the most serious and thus which hazard to control first.

A risk matrix, similar to the example below, helps determine the risk rating of each hazard.

The 1st step is to identify the consequence that could occur as a result of the hazard and then determine the likelihood of the hazard occurring.

The intersection of the likelihood and consequence in the chart gives you the risk rating level.

The priority in controlling hazards is used with the risks ranked from low to extreme.

The AAROC “Hazard Identification and Risk Assessment” form is used for all work sites.

RISK MATRIX: <b>EXTREME</b> - <b>HIGH</b> - <b>MODERATE</b> - <b>LOW</b>							
Consequence x Likelihood = Risk Rating			LIKELIHOOD				
			5	4	3	2	1
			Certain	Likely	Possible	Unlikely	Almost Impossible
CONSEQUENCE	Critical/Fatality	5	25	20	15	10	5
	Serious	4	20	16	12	8	4
	MA+LTI/MOD	3	15	12	9	6	3
	MA	2	10	8	6	4	2
	First-Aid	1	5	4	3	2	1

## Section: Workplace Risk Assessments

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### WORKPLACE ASSESSMENTS

**Low/Acceptable risk** – The total numerical value is calculated to be between 1 and 5, the controls are considered adequate to mitigate the risk and no other action is required.

**Moderate** – The total numerical value is calculated to be between 6 and 9. Consideration should be given to additional measures reducing risk. Work can proceed, however controls must be maintained to ensure that the risk does not increase.


**High** -- Any risk assessment with a determined numerical value between 10 and 15 is considered to be a critical task. Safe work practices or procedures will be documented for all critical tasks.

**Extreme** - The total numerical value is calculated to be between 15 and 25, the risk is unacceptable. Work must not proceed until risk is reduced to a lower level. Controls including training, tools, equipment, safe work practices and procedures are required to reduce risk. Tasks that have a high-risk rating are not to be carried out without approval from management.

#### Hazard Control

Once you have established your hazards and assessed the risks of each, you can decide on ways to control each specific one. Hazard control methods are often grouped into the following categories:

- **Elimination (including substitution):** remove the hazard from the workplace, or substitute (replace) hazardous materials or machines with less hazardous ones.
- **Engineering Controls:** includes designs or modifications to plants, equipment, ventilation systems, guards and processes that reduce the source of exposure.
- **Administrative Controls:** controls that alter the way the work is done, including timing of work, policies and other rules, and **work practices** such as standards and operating procedures (including training, housekeeping, and equipment maintenance, and personal hygiene practices).
- **Personal Protective Equipment:** equipment worn by individuals to reduce exposure such as contact with chemicals or exposure to noise.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Risk Assessments</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 11	

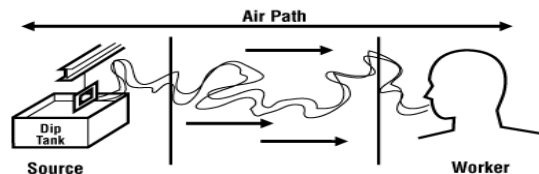
## WORKPLACE ASSESSMENTS

*(Personal protective equipment shall only be used as a measure if the other control measures are not obtainable, are impracticable or do not eliminate or fully control hazards and potential hazards).*

### **Where are controls used?**

Controls are usually placed:

1. At the source (where the hazard comes from)
2. Along the path (where the hazard travels)
3. At the worker



Controls placed at the source are preferred. The last line of defense is typically controls placed at the worker, like PPE.

**Using procedures detailed in this AAROC HSE Program for specific tasks should be one of your first steps to control hazards.**

### **D) EVALUATE AND REVIEW**

It is important to monitor both the hazard and the control method to make sure that the control is working effectively and that exposure to the hazard is reduced or eliminated.


Some tools include physical inspection, testing, exposure assessment, observations, incident reports, employee feedback/input.

Be sure to answer the following questions:

- Have the controls solved the problem?
- Is the risk posed by the original hazard contained or reduced?
- Have any new hazards been created?
- Are new hazards appropriately controlled?
- Are monitoring processes adequate?
- What else can be done?

The risk assessment must be reviewed as often as necessary and at least annually.

The results of an assessment must be provided, in writing, to the joint health and safety committee or the health and safety representative

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Risk Assessments</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 11	

## WORKPLACE ASSESSMENTS

If no joint health and safety committee or health and safety representative is required at the workplace, the assessment must be communicated to workers at the workplace

### REQUIREMENTS

- Mining Regulations 854, Section 5.1, 5.2, 5.3



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Emergency Response Planning

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

## EMERGENCY RESPONSE PLANNING

### PURPOSE

The OSHA requires that Emergency Response Procedures be developed for workplaces. This section outlines the requirements necessary to develop these procedures.

### SCOPE

#### HOW TO DEVELOP A PLAN

Planning should begin before the work starts at the site by the Safety Team or Supervisor.

Development of the plan should include the following elements:

#### Hazard identification

Involves a review of potential onsite hazards and potential risks of each. It should be followed up with an appropriate emergency response to control the hazard. A thorough review should include the following points:

- transportation, equipment, materials
- environmental concerns
- SDS review
- traffic and public roadways
- site design, features
- processes
- people

**All AAROC sites have been reviewed and a subsequent "Hazard and Risk Assessment" has been prepared and posted in the scalehouse or office.**

#### Emergency Resources

Identify which resources are available and have plans in place for any deficiencies.

Important resources include:

- 911 emergency system
- emergency contact list / hospital information
- fire extinguishers
- first aid kits / trained workers in CPR
- spill kits
- eyewash stations

Be prepared and have the resources and the people that will manage them, set up before the job begins.

**All AAROC sites will have these resources available in the scalehouse, office and/or attached shop.**

#### Communication Systems

Reliable communication equipment must be used to relay accurate information quickly. It is always a good idea to have a backup system in place.

Equipment includes:

- Telephone landlines
- Cell phones
- 2-way radios





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Emergency Response Planning

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

### EMERGENCY RESPONSE PLANNING

Emergency phone numbers, supervisor numbers, hospital information and the site location will be on the AAROC *Emergency Contact* sheet on site in the scalehouse or office. Communication will be tested to ensure it works at each location.

#### Administration of the Plan

Administering and organizing the emergency plan is vital to its effectiveness. Normally the person in charge of emergency response has this task (i.e. Supervisor). They must ensure:

- That everyone understands their roles and responsibilities
- That emergency resources are kept at adequate levels during the course of the project.

It is important to review the plan after an emergency in case changes are required.

**Monthly site inspections address any deficiencies in resources or supplies. Workers are trained on the emergency plans during new worker orientations.**

#### Communication of the Procedure

To be effective, the Emergency Response procedures must be clearly communicated to all site personnel. The HSE Program and emergency procedures are available to all workers.

#### Debriefing and Post-Traumatic Stress Procedure

The recovery process after an emergency is a critical step. Many people are unaccustomed to dealing with emergencies and may need assistance or recovery time after an emergency.

Debriefing may be necessary to review how well the plan worked and corrections may be needed. Management will address this need accordingly.

### PROCEDURES

#### **Employee Procedure for Medical Emergency**

1. Take control of the situation
2. Ensure injured employee is in a safe position.
3. Ensure that no further injury or damage can occur.
4. Administer first aid based on the nature of the injury.
5. Immediately notify emergency services if they are required. Follow the procedure for calling 911. (included following this procedure.)
6. If emergency services are not required and the injured still requires immediate medical attention, transport the injured to the nearest emergency medical facility.
7. Immediately inform your supervisor of the nature of the incident.
8. Act as a liaison between the injured employee and the emergency medical team.
9. Maintain contact with your supervisor as to the progress of the emergency.

#### **Emergency Procedure for Calling 911**

1. Dial 911 and wait for dispatch to answer.
2. Tell dispatch the nature of the emergency.

**NOTE: DO NOT HANG UP UNTIL EMERGENCY DISPATCH SAYS IT IS OK TO DO SO.**

#### **Fire Emergency Responsibilities**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Emergency Response Planning

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

### EMERGENCY RESPONSE PLANNING

Regular inspection of all worksites is done to minimize any unusual fire hazards that may be present. All measures are taken to ensure that these hazards are removed or controlled. Special emphasis is placed on housekeeping and storage practices.

#### Employee Procedures for Fire Emergencies

1. Exit the fire area immediately
2. If possible, confine the fire by closing the door in the fire area. Close all doors when exiting.
3. Activate the fire alarm (only applicable at office)
4. Call 911
5. Go to the designated muster point

#### Supervisors:

1. Clear the area of all other personnel and visitors, instruct all employees and visitors to evacuate the area.
2. Delegate a responsible person to call 911 if not done already
3. Ensure that all employees and visitors have evacuated the area and assembled at the predetermined muster point.
4. Take count of all employees and visitors to ensure that everyone is present.
5. Act as a liaison to emergency service personnel.
6. Wait for instruction by emergency authorities before re-entering the work area.
7. Complete any required documentation

#### Severe Weather Emergency Responsibilities

All employees in all locations will follow these severe weather procedures. Supervisors will monitor weather events in their locations and advise employees if severe weather is expected.

#### Thunderstorms

- If you hear thunder, then lightning is close enough to be dangerous.
- Move immediately to a place of shelter.
- Go to a well-constructed, enclosed building.
- Small, open structures do not provide protection from lightning.
- If no building is available, stay inside your vehicle or machine cab.
- Avoid water, high ground, isolated trees, and power lines.
- There is not a place outside that is safe during a thunderstorm.
- Make every effort to get into a solid shelter or metal-topped vehicle. If neither is available, find a low-lying area away from tall, pointy, isolated objects, crouch down and put your feet together. Do not lie down. Cover your ears to reduce the threat of hearing damage from thunder.

#### Severe Winter Weather- Driving

- If driving, pull over somewhere safe
- Call your supervisor and report the weather. Call 911 if needed.
- Do not leave your vehicle unless necessary. Stay in the vehicle and wait for help. Do not leave the vehicle to search for assistance unless help is visible within 100 meters.

## EMERGENCY RESPONSE PLANNING

- Display a trouble sign to indicate you need help. Hang a brightly colored cloth (preferably red) on the radio antenna and raise the hood after snow stops falling.
- Run the engine occasionally to keep warm. Turn on the engine for about 10 minutes each hour (or five minutes every half hour). Running the engine for only short periods reduces the risk of carbon monoxide poisoning and conserves fuel.
- Use the heater while the engine is running.
- Keep the exhaust pipe clear of snow.
- Leave the overhead light on when the engine is running so that you can be seen.
- Do light exercises to keep up circulation. Clap your hands and move your arms and legs occasionally. Try not to stay in one position for too long.

### Severe Winter Weather- Indoors

- Stay indoors and wear warm clothes.
- Listen to a local station for updated emergency information.
- Eat regularly. Food provides the body with energy for producing its own heat.
- Keep the body replenished with fluids to prevent dehydration.
- Charge cell phones
- Prepare for power outages
- Do not leave until safe travel is assured

### Evacuation Muster Points

Each worksite should have predetermined muster points, both primary and secondary. These points will be listed on the safety board, traffic plan or in the emergency plan. In the event of an emergency requiring evacuation, all employees are to immediately leave the work area and go to the muster point. Should the primary point be in a hazardous area, employees will then proceed to the secondary point. Upon arrival at the designated muster point, employees are to report to their supervisor for an employee count.

### Management

Management is ultimately responsible for the implementation of the Emergency Response Procedures. Management will be trained on all aspects of the procedures and have clear knowledge about notification procedures, first aid, emergency medical facilities, specific duties, actions, and responsibilities, and all related company policies and procedures.

## REQUIREMENTS

### Legislation:

- Occupational Health and Safety Act, Section 25(2)(h)

### Training:

- Employees will understand that all sites have posted Emergency Procedures and contact information.
- Employees will be trained in the emergency procedures during new worker orientations.

## EMERGENCY RESPONSE PLANNING

### GENERAL EMERGENCY RESPONSE PROCEDURE

In case of an emergency, the supervisor on site shall take control and proceed according to the following guidelines:

#### 1. TAKE COMMAND

- The most senior person on site should take charge
- Assign duties to specific individuals

#### 2. ASSESS THE SITUATION

- Remain calm
- Identify the emergency, problem, hazards, and who is involved.
- Try to identify the cause that must be controlled

#### 3. ADMINISTER FIRST AID

- Ensure that First Aid is provided by a qualified person.
- Get an AED if available
- There should be at least one person at each site who is trained to administer First Aid (Standard or Emergency as required).
- Organize the workforce for a headcount and emergency assignments

#### 4. CALL EMERGENCY SERVICES

- Charge someone with the responsibility to call an ambulance or Fire Department and instruct him/her to report back with the information as to when help will arrive.
- As a rule, sites will have a list of emergency numbers posted. In smaller projects or those of short duration, a site-specific list of emergency numbers may not be available. In this instance, call the office by any means available (cell phone, two-way radio).
- Never leave the victim alone.

#### 5. PROVIDE PROTECTION

- Eliminate further losses and safeguard the area. Control the energy source causing the emergency.
- Protect victims, equipment, materials, environment, and accident scene from continuing damage or further hazards.
- Divert traffic, suppress fire, prevent objects from falling, shut down equipment or utilities, and take other necessary measures. Use spill response if required.
- Protect all persons (workers and members of the public) from dangers arising from the emergency.
- Evacuate area if necessary for protection.

**EMERGENCY RESPONSE PLANNING**

***Preserve the accident area; only disturb what is essential to maintain life or relieve human suffering and prevent immediate or further losses.***

**6. MAINTAIN CONTACT**

- Keep emergency services informed of the situation.
- Contact utilities such as gas and hydro where required
- Exercise increasing control over the emergency until hazards are controlled

**7. GUIDE EMERGENCY VEHICLES**

- Have someone waiting to alert and guide the emergency vehicle to the location of the emergency scene.

**8. OBTAIN NAME OF HOSPITAL OR EMERGENCY CENTRE**

- Get information (Name, address, Phone Number) about the location where the victim is being taken.

**9. ADVISE MANAGEMENT**


- Contact Management with details of the accident. The information must be detailed enough for Management to notify relatives of the victim and the authorities if necessary.
- Complete the required Accident Investigation Form. [see Accident Investigation section]

**10. PRESERVE ACCIDENT SCENE**

- Barricade or rope off the area to avoid disturbing the conditions at the time of the accident as much as practical. The area should remain isolated until authorities have an opportunity to investigate the accident.

**11. PRESS RELATIONS**

- Refer all questions of the press or news media to a delegated person at head office. Simply state that all actions to relieve suffering are being taken and that all other enquires be referred to head office.

 <p><b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b></p>	<b>Section: Emergency Response Planning</b>		
	APPROVED BY: Jamie Martelle		
	APPROVAL DATE:	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES:	

## EMERGENCY RESPONSE PLANNING

### EMERGENCY CONTACT INFORMATION

#### SITE LOCATION

(Please indicate precisely the 9-1-1 number, street or road name. A detailed description of the site or landmarks should also be included if possible.)

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#### EMERGENCY NUMBERS

Police: \_\_\_\_\_

Ambulance: \_\_\_\_\_

Fire: \_\_\_\_\_

#### MEDICAL FACILITIES

Please indicate the address and phone number of the following:

Nearest Hospital: \_\_\_\_\_

Nearest Walk-in Clinic: \_\_\_\_\_

#### AAROC CONTACT NUMBERS

##### **In case of emergency during regular work hours contact:**

AAROC Dispatch (519) 659-9110 or Office: (519) 652-2104

AAROC Shop (519) 659-9109

Jim Aarts- Safety Officer (519) 521-9597 (cell)

Nik Parras-H&S Coordinator (519) 639-0698 (cell)

##### **After-hours or weekends contact:**

Jamie Martelle, Manager (519) 617-0893 (cell)

Rob Ritchie, Ops Foreman (519) 521-7680 (cell)

Tom Ritchie, Ops Foreman (519) 521-2210 (cell)

##### **MINISTRY OF LABOUR HEALTH AND SAFETY CONTACTS:**

Health and Safety Centre -24 hrs. 1-877-202-0008

Website: [www.labour.gov.on.ca](http://www.labour.gov.on.ca)



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Employee Safety Training

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

## EMPLOYEE SAFETY TRAINING

### PURPOSE

The Occupational Health and Safety Act requires that workers receive information, instruction and competent supervision to protect their safety. AAROC believes that effective training is absolutely essential for all workers and their safety.

### SCOPE

#### Worker / Supervisor Training:

All workers will have an orientation session prior to beginning work. This will include:

- Review of the New Worker Orientation: in-person and/or digitally

#### Supervisors will also receive:

- MOL Supervisor Awareness training online
- Competent Supervisor course or Surface Miner- Generic First Line Supervisor course, if required.

#### Worker Awareness

All workers will receive the mandated "Worker Awareness" training either in-person or digitally.

#### First Aid

The company follows the WSIB regulations for worker training in Standard First Aid / CPR or Emergency First Aid / CPR for all worksites. Training will be provided by qualified third-party trainers.

#### WHMIS

All employees will receive WHMIS training as required by current legislation either in-person or digitally.

#### Fire Prevention

Employees will review the sections of the AAROC program which includes fire prevention and emergency procedures as part of the orientation.

#### Transportation of Dangerous Goods

Required employees will be trained in the transportation of dangerous goods by a third-party. Training is currently required every 3 years.

#### Driver Training (MTO regulations where applicable)

#### Joint Health and Safety Committee- Part 1 and 2 certifications (where applicable)

#### Surface Miner Training Program - Common Core

The Surface Miner Program is a series of training standards designed to ensure all workers in surface mines are trained to do their job safely. Employees must be trained in and pass the three Common Core Modules – 'Work Safely in the Job Environment', 'Lock and Tag' and 'Operate Hand and Power Tools' before starting the specialty module training.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Employee Safety Training

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

## EMPLOYEE SAFETY TRAINING

### Surface Miner Training Program - Specialty Modules

The Specialty Module Program is a series of training standards designed to ensure all workers in surface mines are trained to operate individual types of equipment involved in production. They include: Front End Loaders, Excavators, Crushers, Stackers/Conveyors, Haulage Trucks, Bulldozers, Genset etc... Each worker who operates or works in proximity to various types of equipment will be trained for that specific equipment type.

### Safety talks

Safety talks will be provided when necessary. Each employee must sign an acknowledgment after reviewing the safety talk.

### Job or Site-Specific Training

Training may be required for some employees working in specialized jobs or performing certain tasks. Training may include written procedures or instructions or formalized courses and training sessions.

### Annual Health and Safety Meeting

The company organizes an annual Health and Safety meeting. This meeting is designed to be a general review of the company's health and safety policy, program and individual responsibilities of all parties. The meeting will include a review on selected topics. The meeting may be held in-person or in a digital format.

## REQUIREMENTS

### Legislation:

- WSIA
- OHSA, Sections 9, 37, various
- Mining Regs. - O. Reg. 854, Sections 11, 28, various





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Workplace Inspections

PREPARED BY: Health and Safety Team

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REVISION # 1

# OF PAGES: 1

## WORKPLACE INSPECTIONS

### PURPOSE

Workplace inspections are vital to identify hazards and maintain safety standards. Inspection reports will be filed and all outstanding action items needing attention will be recorded, circulated, and reviewed.

### PROCEDURE

1. **Pit and Plant Monthly Inspections** – scheduled inspections conducted monthly by certified J.H.S.C. members in all aggregate extraction and crushing sites. The constant changes in equipment, conditions and physical layout of the sites must be examined on a regular basis to promote safety.
2. **Daily Inspections** – of all mobile equipment and commercial vehicles shall always be conducted and logged immediately prior to operation by the operator or driver. This is to ensure that the piece of equipment or vehicle is in safe operating order. Submit all inspections.
3. **Pre-Operational Inspections**- on processing equipment will be completed at time of setup. Pull cords and emergency stop switches will be checked and logged on inspections. Constantly monitor equipment setup and record and report any issues.
4. **Spot Inspections** – unscheduled inspections by the supervisor or management to promote safety.
5. **Main Office**- The office will be inspected monthly by a member of the JHSC.

### Remedial Action

It may be necessary to take remedial action if substandard or hazardous conditions are found. Work may be stopped until all members of the inspection team agree with the suggested course of action. The condition(s) will be recorded on the inspection report.

### Reporting

The inspection reports shall be circulated and reviewed by Management and Supervisors.

### Follow-Up

Follow-up reporting on deficiencies must be carried out by the Safety Team, Supervisors, and / or J.H.S.C. members. All work done will be filed. All workers affected by the repair or action will be notified.

### REQUIREMENTS

#### Legislation:

- Occupational Health and Safety Act, Section 9, (23-29)



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hours and Conditions of Work

PREPARED BY: Health and Safety Team

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REVISION # 1

# OF PAGES: 2

## HOURS AND CONDITIONS OF WORK

### PURPOSE

These procedures are in place to ensure employees understand their general workday and if working alone, are monitored and able to summon assistance if needed.

### SCOPE

#### Hours

At AAROC Aggregates the workday varies seasonally and by role, but generally is between 9 - 10 hours/day. Exceptions may occur depending on a work contract in which case the hours will be discussed prior to the job starting.

#### Meal Breaks

All employees are required to take a half-hour unpaid lunch-break indicated on their daily timesheet. Usually this occurs from 12:00 pm (noon) to 12:30 pm or after five (5) consecutive hours without a meal break. Rotations or delays are permissible only if approved by the supervisor.

#### Working Alone

Management should take every effort to avoid persons working alone. When it cannot be avoided, the following steps must be implemented before work begins:

- A worker assigned by a supervisor to work alone in a workplace, gravel pit or surface mine shall be well trained, experienced and a competent person.
- Means of communication with the worker must be provided in the form of appropriate two-way radio contact and / or cell phone.
- A plan to check-in with the supervisor or their designate, throughout the shift at regular intervals must be established.
- The worker must be visited by the supervisor at least once during their shift.
- If at check-in, contact with the worker cannot be made, the site must be visited immediately if possible, by a supervisor or other workers. If no one is able to check immediately, then emergency services (911) should be called.
- Contact must be made every time the worker leaves the workplace or is away from their means of communication (i.e. 2-way radio). Indicate a length of time away from the workplace and make contact upon return.
- The worker must communicate at the end of the shift that work has stopped, and the worker is leaving the site.

#### After Hours

In addition to the above procedures, the following should apply when working alone after hours:

- The contact and check-in policy should be confirmed. It may involve different supervisors or different means of communication
- A spouse or family member should know your work location and schedule. They should also have the supervisor's contact information



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hours and Conditions of Work

PREPARED BY: Health and Safety Team

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REVISION # 1

# OF PAGES: 2

## HOURS AND CONDITIONS OF WORK

### ENVIRONMENTAL CONSIDERATIONS

#### Pumping / Dewatering

It is extremely important that water is only pumped at a site if it is allowed. There are very strict MECP regulations regarding pumping and taking of water.

If there is a permit issued for the taking or pumping of water, it must be complied with. The supervisor is responsible to confirm:

- a) the permit is valid and present at the site;
- b) compliance with all items listed on the permit. This may include amount of water allowed to be pumped in one day, times of day pumping is allowed, where water may be pumped to, reporting procedures, when permit expires etc..

If there is no permit issued, pumping water may not be allowed depending on the site. The supervisor must contact management for clarification.

Always check if you need to pump water. Some issues that typically arise are:

- pumping into sewers (sanitary or storm)
- pumping offsite
- pumping more than 50, 000 litres per day

**PLEASE NOTE: If water is to be pumped into a storm system, protection and/or filtering measures MUST be in place before entry into the storm system. Although protection might be provided at the outlet, it is also required before the water enters the system.**

#### Excess Soils Management

As per Ontario Regulations legislated by the MECP, excess soils imported into AAROC pits for reuse must be tested, managed, and documented according to certain requirements. Please see AAROC's "Fill Management Plan" (separate document) for all information and instruction pertaining to excess soil.

#### RIGHT TO REFUSE

As part of AAROC policy, all workers have the right to refuse work which they believe may be harmful or damaging to the environment. This includes tasks that the worker is not trained or qualified to perform. The orders to do the work may come from an AAROC Supervisor, General Contractor (Constructor) or an Owner however, stop the work and discuss the issue further with AAROC management.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fall Protection

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REVISION # 1

# OF PAGES: 6

# FALL PROTECTION

## PURPOSE

The purpose of this section is to establish the minimum requirements and guidelines to be used to protect employees from falls when they are working at elevated positions or are exposed to potential fall hazards.

## SCOPE

### Scope

This procedure is applicable to all employees, and any subcontractor(s) employed by AAROC.

This procedure provides the minimum requirements to be implemented by all employees and subcontractors. Where a Client's requirements are less stringent than those in this procedure, the requirements of this procedure shall still be implemented. Where a Client's requirements are more stringent than those in this procedure, the Client requirements shall be adhered to.

### Background

Working from heights is a high-risk activity. Risks can be associated with the use of ladders, personnel lifts, or working on elevated walkways. Proactive protective measures must be taken prior to working at elevated heights.

To achieve 100% fall protection, either primary or secondary fall protection systems are used. In some instances, a combination of both may be required.

### Legislation

According to Ontario Regulation 854, Mines and Mining Plants:

#### Fall Arrest: Section 14

(1) Subject to subsection (5), where a worker is exposed to the hazard of falling more than three metres, a fall arrest system shall be used to protect the worker.

(2) The fall arrest system required by subsection (1) shall consist of a suitable combination of a belt, a full body harness, a lanyard, an anchor and a rope-grabbing device or lifeline.

(3) The belt, full body harness, lanyard and lifeline shall,

- (a) be made of material with elastic properties capable of absorbing and minimizing the arrest force in case of a fall;
- (b) be designed to distribute a fall arrest force in such a manner that the possibility of injury to the worker is minimized;
- (c) be of sufficient strength to absorb twice the energy that may be transmitted to the fall arrest system; and
- (d) not be knotted or allowed to become knotted, when used or worn.

(4) When being used and worn against the hazard of falling, the lifeline of the fall arrest system shall be,

- (a) anchored so that a worker will fall free of arrest not more than one metre; and
- (b) connected to an object that is,
  - (i) capable of resisting the arrest force in case of a fall, and
  - (ii) free of sharp edges.

## FALL PROTECTION

(5) Subsection (1) does not apply to a worker employed in shaft sinking where measures and procedures are adopted and put into effect that will provide equal or greater protection to the worker.

### Access to the Workplace: Section 46, 47, 48, 49, 54

46. (1) A safe means of access to a workplace shall be provided by a walkway, stairway or ladderway.

(2) Where workers are required to work, operate, maintain or service equipment, a safe means of access shall be provided as prescribed in subsection (1).

(3) Every walkway and every working platform more than 1.5 metres above the ground shall be provided with,  
 (a) a handrail not less than 0.91 metre or more than 1.07 metres above the floor of the walkway or platform;  
 (b) a second rail placed at the mid-point between the top rail and the floor of the walkway or platform or have the space between the top rail and the floor closed by a screen; and  
 (c) toeboards which shall extend from the floor a height of not less than 100 millimetres.

(4) The handrail required by clause (3) (a) shall be capable of withstanding a load applied in any direction to the top rail of at least 0.9 kilonewton.

(5) Despite clauses (3) (b) and (c), toeboards and second rails are not required on a temporary walkway or working platform or on an underground drilling platform that is normally not more than three metres above the ground.


(6) When a platform consists of wooden planks, the planks shall,  
 a) be sound, unpainted and free of large knots;  
 b) provide a minimum safety factor of three times the maximum load to which it is likely to be subjected; and  
 c) be nailed or otherwise secured against movement. R.R.O. 1990, Reg. 854, s. 46 (6).

(7) Where a means of access to a workplace is inclined at more than twenty degrees and less than fifty degrees to the horizontal, a stairway or ladderway shall be provided.

(8) Where a means of access to a workplace is inclined at more than fifty degrees to the horizontal, a ladder shall be provided.

(9) A stairway shall,  
 (a) be at an angle not greater than fifty degrees to the horizontal;  
 (b) not have the rise or vertical distance between landings of a flight exceed 3.6 metres;  
 (c) have the treads and risers uniform in width and height respectively in any one flight; and  
 (d) be provided with handrails of adequate strength not less than 0.91 metre and not more than 1.07 metres in height above the treads of the stairs.

47. (1) A ladder shall,  
 (a) be of strong construction;  
 (b) be free from broken or loose members or other faults;

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Fall Protection</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## FALL PROTECTION

- (c) be installed and maintained so as to reduce to a minimum the hazard of a person falling therefrom;
- (d) if made of wood,
  - (i) be of sound straight-grain lumber,
  - (ii) not be painted or otherwise treated in a manner to obscure the grain;
- (e) have a distance between centres of the rungs not greater than 300 millimetres or less than 250 millimetres;
- (f) have the spacing between rungs not vary more than fifteen millimetres in a ladderway;
- (g) have not less than 100 millimetres clearance behind any rung from a wall or any timber or obstruction underneath the ladder; and
- (h) project at least one metre above the landing or opening unless strong handholds are provided above the top of the ladder.

(2) A fixed ladder shall be securely fastened in place.

48. (1) Except in an underground mine, a ladderway at an angle steeper than seventy degrees to the horizontal shall be fixed in place and be provided with,

- (a) platforms at intervals not greater than seven metres;
- (b) a safety cage; or
- (c) a protective device which when used will prevent a worker from falling.

(2) Except in an underground mine, where platforms are used in conjunction with a ladderway,

- (a) the ladders shall be offset;
- (b) a platform shall be provided at each place where ladders are offset; and
- (c) the platform shall be not less than 600 millimetres in width by 1.2 metres in length.

49. A portable ladder shall,

- (a) be equipped with non-slip feet or otherwise secured;
- (b) where any activity in the vicinity may create a hazard to a person thereon, be protected at its base; and
- (c) where the ladder has metal or metal-reinforced side rails, not be used near exposed and energized electrical circuits or equipment.

54. (1) A walkway, stairway or ladderway shall be,

- (a) maintained in a safe condition;
- (b) free from obstructions;
- (c) of sufficient size to ensure that crowding does not occur; and
- (d) cleared of hazardous accumulation of material without undue delay

(2) Any opening in a floor or other surface which may be a hazard to a worker shall be,

- (a) protected by a guardrail; or
- (b) covered with securely fastened planks or other material capable of supporting any load to which it is likely to be subjected.

### Ladders

Choose the right ladder for the job. Remember the following:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fall Protection

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

### FALL PROTECTION

- CSA approved ladders must be used;
- Ladders will be inspected each day before the shift starts
- Defective or broken ladders should be tagged out and removed from the site. Return to the shop.
- Aluminum ladders may not be used where there is a risk of electrocution from overhead wires or other electrical hazard areas. In this case, fiberglass ladders must be used.
- Ladder must be set up at a safe angle. Not less than 1/4 and not more than 1/3 of the length from a point directly below the top of the ladder.
- It must be located so that an adequate landing surface that is clear of obstructions is available at the top and bottom of the ladder.
- All ladders must be placed on a stable base.
- It must be secured at the top and bottom to prevent movement.
- It must extend above the top by at least 1 metre
- When climbing up or down, always face the ladder and maintain 3-point contact.
- Do not carry tools, equipment, or material in your hands while climbing. Use a hoist line for lifting and lowering.
- When a stepladder is being used, its legs shall be fully spread open, and its spreaders shall be locked.
- No worker shall stand or step on the top cap, top step, or pail shelf of a stepladder.

#### Primary Fall Prevention Systems

Primary fall prevention systems are the preferred choice for performing work in elevated areas. These systems provide walking and working surfaces equipped with standard guardrail systems on all open sides. In most cases, primary fall prevention systems are sufficient fall prevention methods and do not require the use of additional (secondary) fall protection systems such as a harness / lanyard system.

#### Guardrails

Guardrails are an integral part of most primary fall prevention systems and must be constructed according to the specifications noted in the Mining Regulations.

Most of AAROC's equipment, machines and plants have guardrails, ladders and stairways constructed to protect workers from falls. This generally eliminates the need for secondary fall protection devices.

#### Covers

Any opening in a floor or other surface which may be a hazard to a worker shall be,

- (a) protected by a guardrail; or
- (b) covered with securely fastened planks or other material capable of supporting any load to which it is likely to be subjected

- All covers shall be marked to provide adequate warning of the hazard,
- Only authorized personnel shall be permitted to remove covers.

#### Secondary Fall Protection Systems

Secondary fall protection systems should only be used after all efforts to use primary fall prevention systems have been exhausted or when being used together with primary systems. The following minimum standards shall be met:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fall Protection

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

### FALL PROTECTION

- Full body harnesses are the only type of harness allowed in a fall arrest system. The use of body belts or a safety belt for fall arrest is prohibited.
- A full body harness and shock-absorbing lanyard must be used when working outside guarded platforms more than 3 m (10 ft) above ground level.
- The use of a second shock-absorbing lanyard may be used to achieve continuous tie-off.
- Fall protection devices (safety harnesses, lanyards, etc.) shall be inspected for damage prior to each use. Defective equipment shall be immediately removed from service, tagged and returned to your Supervisor.
- The lanyard shall be attached to the D-ring located in the middle back of the safety harness
- The full body safety harness/lanyard must be attached to a secure anchor point
- Snaphooks attached to shock absorbing lanyards shall be of the double action/locking type design. Simple spring resistant snaphooks shall not be used for fall protection
- Fall protection devices and systems shall not be used for any other purpose other than employee safeguarding.
- Workers in elevated work platforms or personnel lifting devices shall wear full body harnesses and secure their lanyards according to manufacturer instructions.
- In situations where a fall could result in impalement or other injury (i.e. working over a hot process, operating equipment, etc.) fall protection equipment shall be utilized regardless of the potential falling distance.
- Fall protection devices subjected to shock loading imposed during fall arresting shall be removed from service, tagged and returned to the office/shop.
- Fall protection devices shall be inspected on an annual basis by a qualified external inspection agency as required.
- All workers using fall protection devices must complete training specific to the equipment used including procedures on the use, care, inspection and maintenance of the fall protection devices or systems.

#### Anchor Points

The strength of a personnel fall arrest system is based on being attached to an anchor system that does not reduce the strength of the system. Anchor points must be sufficient to resist the arrest force of a fall.

#### Lifeline Systems

Lifeline systems are points of attachment for fall protection lanyards and harnesses. Lifelines may be mounted either vertically or horizontally and provide fall protection for personnel working in elevated areas.

- Lifelines shall not be used for any other purpose than fall protection
- Lifelines shall be protected against being cut or abraded (i.e. Softeners around lifelines at anchor point)
- Lifelines must be designed, installed, maintained and removed by persons competent and trained in lifeline installations

#### Training

All workers using fall protection devices must complete training specific to the equipment used including procedures on the use, care, inspection and maintenance of the fall protection devices or systems.

Training must be conducted by a competent person or organization.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fall Protection

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

## FALL PROTECTION

### Fall Protection Plan

An employer must develop procedures in a fall protection plan for a work site if a worker at the site may fall 3 metres or more and the worker is not protected by guardrails.

A fall protection plan must specify the following:

- the fall hazards at the work site
- the fall protection system to be used at the work site
- the anchors to be used during the work
- clearance distances below the work area, if applicable, have been confirmed as sufficient to prevent a worker from striking the ground, an object or another level below the work area
- the procedures used to assemble, maintain, inspect, use and disassemble the fall protection system, where applicable
- the rescue procedures to be used if a worker falls and is suspended by a personal fall arrest system and **needs** to be rescued

The employer must ensure that the fall protection plan is available at the work site and is reviewed with workers before work begins.

The employer must ensure that the plan is updated when conditions affecting fall protection change.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Guards, Conveyors, and Electrical Safety

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### GUARDS, CONVEYORS, AND ELECTRICAL SAFETY


#### PURPOSE

To give all workers an understanding of the hazards involved with conveyors and electrical equipment and the controls for those hazards, including guarding and lockout.

#### SCOPE

Conveyor Regulations:

1. No person shall ride on a conveyor belt.
2. A conveyor shall have,
  - a) a means to safely apply belt dressing while the conveyor is in motion; and
  - b) if the conveyor is started automatically, by remote control or if a portion or portions of the conveyor are not visible from the operator's position, a start-up warning device.
3. The following pinch points shall be guarded by a guard that, unless it would render the pinch point inaccessible, extends at least 0.9 metres from the pinch point:
  - a) The head, tail, drive, deflection and tension pulleys.
  - b) If the lift of the belt is restricted, the return rollers and the carry rollers.
  - (3.1). If it is impracticable to comply with the guarding described above then:
    - a) a fence shall be in place that prevents access to the pinch points;
    - b) a barricade shall be in place that prevents access to the pinch points; or
    - c) a gate equipped with an interlocking device, which has a manual reset switch, shall be in place that prevents access to the pinch points while the conveyor is operating.
  - (3.2) If the position or construction of the conveyor provides equivalent protection that renders the pinch points inaccessible, then guarding, fencing barricades or gates are not required.
4. Guards shall be provided beneath a conveyor,
  - a) that passes over a worker; or
  - b) from which falling materials or parts may endanger a worker.
5. A conveyor shall be stopped and the prime mover de-energized, locked and tagged out when the conveyor is undergoing repairs, adjustments or maintenance unless,
  - a) it is necessary to run the conveyor during such work; and
  - b) effective precautions are taken to prevent injury to a worker from moving parts.
6. Every conveyor shall have an emergency stopping system that operates a manual reset switch that stops the conveyor.
7. If a conveyor is accessible to a worker, the emergency stopping system is required,
  - a) at any pinch point on the conveyor that is not set out in Section 3 and the emergency stopping system must be within easy reach of a worker at each of those pinch points and;
  - b) at any other locations along the conveyor in order to ensure that the system is always within easy reach of a worker.
8. If a conveyor is inaccessible to a worker by any means listed here:
  - a fence
  - a barricade

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Guards, Conveyors, and Electrical Safety</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## GUARDS, CONVEYORS, AND ELECTRICAL SAFETY

- a gate equipped with an interlocking device, which has a manual reset switch that renders the conveyor inoperative when the gate is moved or opened
- the location of the conveyor renders it inaccessible
- any combination of the above

then the emergency stopping system is required at a location or locations determined by the employer following consultation with the joint health and safety committee or health and safety representative, if any.

### **Workers should exercise caution when working near conveyors and follow these safety points:**

- Ensure that the Original Equipment Manufacturer (OEM) and/or company-fabricated guards are functional and affixed to all required pinch points and areas where a worker may be endangered while in operation. A guard must be designed so that it can only be removed using a tool.
- All workers shall familiarize themselves with the conveyors on their job-site by locating conveyor pinch points, grease fittings, emergency stopping systems, operating controls and start/shut-off procedures.
- It is strictly forbidden to remove a guard to access parts of the equipment while the machine is in operation until lock-out and tag-out procedures have been implemented prior to guard removal. See Section 24 Lock-Out and Tag-Out.
- Workers should avoid walking under conveyors, stackers, transfer belts, or similar equipment while in operation. If you can't get around because of the set-up then STOP, look up and around for falling stones, material, or other hazards, and then only proceed through and away from the conveyor if safe to do so.
- Keep loose clothing, tools and body parts away from conveyor pinch points.
- "D" handle shovels are not permitted in proximity of crushing/screening equipment or conveyors.
- All emergency stopping systems on all conveyors and/or screen plants must be tested prior to setup and at least monthly. Log them on the inspection checklist. If the systems do not work, they must be repaired. Lock out the unit and contact your supervisor.
- Conveyors should be lowered from their elevated position when moving distances greater than its typical pile shift.

### **Genset / Crusher Electrical Safety**

- Repair, maintenance, or service work is NOT ALLOWED to be performed on electrical components of gensets or other electric processing equipment by an unauthorized employee, nor should an electrical panel cover be removed by an unauthorized employee. Certified electricians or certified mechanics will be called for this type of work.
- All electrical equipment should be grounded to the specifications dictated by the manufacturer or a certified electrician.
- All gensets and electric processing equipment should be inspected regularly by a certified industrial electrician.
- Most electrical motors are operated remotely and therefore employees must be mindful of sudden start ups and proper lock-out procedures. A loud horn or siren should be used to indicate their start up.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Guards, Conveyors, and Electrical Safety

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

## GUARDS, CONVEYORS, AND ELECTRICAL SAFETY

### General electrical safety – tools, cords, generators:

- Use only tools that are polarized or double insulated. Make sure the casings of double- insulated tools are not cracked or broken.
- Make sure that tool cords, extension cords, and plugs are in good condition.
- Use only 3-pronged extension cords.
- Make sure that extension cords are the right gauge for the job to prevent overheating, voltage drops, and tool burnout. A 12-gauge extension cord is typically ideal.
- Receptacles must be GFCI-protected.
- Use only generators with neutral bonded to frame.
- Always use a Type A ground fault circuit interrupter (GFCI) with portable electric tools operated outdoors or in damp or wet locations. GFCI's detect current leaking to ground from a tool or cord and shut off power before damage or injury can occur.


## REQUIREMENTS

### Legislation:

- Mining Regs. 854, Sections 90, 159, 160, 185, 196, various

### Training:

- Employees will be trained in the Surface Miner specialty module if it applies to the task they are performing (i.e. generator, conveyor)

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Fire Prevention</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## FIRE PREVENTION

### PURPOSE

All workers must understand the fire prevention regulations for all worksites and vehicles.

### SCOPE

#### **Fire Emergency Responsibilities**

Regular inspection of all worksites is done to minimize any unusual fire hazards that may be present. All measures are taken to ensure that these hazards are removed or controlled. Special emphasis is placed on housekeeping and storage practices.

At AAROC worksites, regular monthly safety inspections are conducted.

At the AAROC office, monthly safety inspections are conducted as well as fire inspections conducted by professional third-party technicians.

#### **Employee Procedures for Fire Emergencies**

1. Exit the fire area immediately
2. If possible, confine the fire by closing the door in the fire area. Close all doors when exiting.
3. Activate the fire alarm (only applicable at office)
4. Call 911
5. Go to the designated muster point

#### **Supervisors:**

1. Clear the area of all other personnel and visitors, instruct all employees and visitors to evacuate the area.
2. Delegate a responsible person to call 911 if not done already
3. Ensure that all employees and visitors have evacuated the area and assembled at the predetermined muster point.
4. Take count of all employees and visitors to ensure that everyone is present.
5. Act as a liaison to emergency service personnel.
6. Wait for instruction by emergency authorities before re-entering the work area.
7. Complete any required documentation

At the main office building, a Fire Safety Plan has been developed. This plan details the fire prevention and protection devices and procedures for the building, including:

- Emergency contacts
- Procedures in case of fire
- Fire extinguishers
- First aid kits
- Fire alarm system: pull stations, heat detectors, smoke detectors, hose cabinets, 24-hour monitoring, emergency lighting
- Fire drills and logs
- Building diagrams



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

## FIRE PREVENTION

### Fire extinguishers at worksites must be:

- readily accessible in marked locations
- inspected regularly
- promptly refilled after use

### Extinguishers must be located:

- where flammable materials are stored, handled or used
- where temporary oil or gas fired equipment is being used
- where welding or open flame cutting is being done
- in mobile equipment

Fire extinguishers are classified according to their capacity to fight specific kinds of fire:

Class A – for fires in ordinary combustible materials such as wood and paper where you need a quenching, cooling effect.

Class B – for flammable liquid and gas fires such as oil, gasoline, paint, and grease where you need oxygen exclusion or flame interruption.

Class C – for fires involving electrical wiring and equipment where you need a non-conductive extinguishing agent.

Class D – for fires in combustible metals such as sodium, magnesium, and potassium.

**For most operations, a 4A40BC extinguisher is required.**

### Containing the Fire

All fires can be very dangerous and life-threatening. Your safety should always be your first priority when attempting to fight a fire.

### Before deciding to fight a fire, be certain that:

1. The fire is small and not spreading. A fire can double in size within two or three minutes.
2. You have the proper fire extinguisher for what is burning.
3. The fire won't block your exit if you can't control it. A good way to ensure this is to keep the exit at your back.
4. You know your fire extinguisher works. Inspect extinguishers once a month
5. You know how to use your fire extinguisher. There's not enough time to read instructions when a fire occurs.

### How to Fight a Fire Safely:

1. Always stand with an exit at your back.
2. Stand several feet away from the fire, moving closer once the fire starts to diminish.
3. Use a sweeping motion and aim at the base of the fire.
4. If possible, use a "buddy system" to have someone back you up or call for help if something goes wrong.
5. Be sure to watch the area for a while to ensure it doesn't re-ignite.

### Never Fight A Fire If:

1. The fire is spreading rapidly. Only use a fire extinguisher when the fire is in its early stages. If the fire is already spreading quickly, evacuate and call the fire department.

## FIRE PREVENTION

2. You don't know what is burning. Unless you know what is burning, you won't know what type of fire extinguisher to use. Even if you have an ABC extinguisher, there could be something that will explode or produce highly toxic smoke.
3. You don't have the proper fire extinguisher. The wrong type of extinguisher can be dangerous or life-threatening.
4. There is too much smoke or you are at risk of inhaling smoke. Seven out of ten fire-related deaths occur from breathing poisonous gases produced by the fire.

When using an extinguisher remember...

**P** - Pull the pin

**A** - Aim the nozzle low at base of fire

**S** - Squeeze the handle

**S** - Sweep back and forth at base of fire

Once you've discharged an extinguisher, report it immediately to your supervisor.

### Inspections:

A competent worker must inspect the fire extinguishers at least monthly and shall record the date of the inspection on the tag attached to it.

Annual maintenance inspections will be completed by a 3rd party technician.

### Check that:

- it is well supported; all hangers are fastened solidly;
- it is properly charged (read pressure gauge);
- the discharge opening is clear;
- the ring pin is attached properly;
- the inspection tag is attached and current and
- there are no apparent defects



## REQUIREMENTS

### Legislation:

Mining Regulations 854, S. 41

### Training:

- All workers will review this section during new worker orientations. Office staff will also review the building "Fire Safety Plan"
- Every worker who may be required to use a fire extinguisher will be trained in its use. This section of the program will be reviewed with all workers.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

## HOT WORK

### PURPOSE

The purpose of this section is to establish hot work safety procedures and to ensure that all hot work operations are performed in the safest manner possible, and in compliance with applicable regulations.

### DEFINITIONS

#### Hot Work:

Any work performed that produces an increased risk of fire or explosion from the generation of sparks, flame, ignitable dust or vapour or other sources of ignition and includes welding, flame cutting, soldering, brazing, grinding or other similar work.

### SCOPE

Most hot work is performed by staff at the AE maintenance shop in designated welding areas, however some field work may be conducted by other AAROC workers.

When tasks require work to be done outside the shop (i.e. inside a crusher), a Hot Work Permit may be required.

General good practices before performing hot work include:

- Making sure that all equipment is in good operating order before work starts.
- Inspecting the work area thoroughly before starting. Look for combustible materials in vicinity of job area.
- Clearing any combustible materials around the work zone.
- Using water ONLY if electrical circuits have been de-energized to prevent electrical shock.
- If combustibles cannot be moved, cover them with shields. Protect gas lines and equipment from falling sparks, hot materials and objects.
- Securing, isolating, and venting pressurized vessels, piping and equipment as needed before beginning hot work.
- Posting a fire watch within the work area, including during breaks, for at least 30 minutes after work has stopped. Depending on the work done, the area may need to be monitored for longer after the end of the hot work.
- Shut down any process that produces combustible atmospheres.

### Personal Protective Equipment

#### Eye and Face Protection

Welding helmets or face shields provide radiation, thermal, electrical, and impact protection for face, neck, forehead, ears, and eyes.

The filtered or shaded plate is the radiation barrier. It is necessary to use a filter plate of the proper lens shade to act as a barrier to the harmful light rays and to reduce them to a safe intensity.

Always ensure that the correct lens shade is selected for the type of welding being conducted.

When gas cutting, use a face shield or goggles and ensure that the proper lens shade is used.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

## HOT WORK

### Clothing

Clothing should be made of non-synthetic materials such as wool. Woolen clothing is preferable to cotton because it is less likely to ignite. Keep sleeves rolled down and collars buttoned up. Wear shirts with flaps over pockets and pants with no cuffs. Remove rings, watches, and other jewelry. Never carry matches or lighters in pockets. Clothing should be free from oil and grease

Wear flame-proof gauntlet gloves and an apron or leggings. Wear high-cut safety footwear laced to the top to keep out sparks and slag.

### Hearing Protection

Ear plugs or ear muffs must be used when welding, cutting or grinding.

### Respiratory protection

Protection will not be required for most welding operations if adequate outdoor ventilation is provided. However, when ventilation is not adequate, respiratory protection must be worn. Typically, a half-mask respirator with cartridges suitable for welding fume should be used. Consult with your supervisor before work begins to select the proper type.

### Welding and Cutting Hazards

Welders are exposed to a wide range of hazards such as inhalation of toxic fumes and gases, serious burns from hot metal, and electric shocks from welding cable.

There are generally 2 groups: Physical and Chemical Hazards

### Physical Hazards

Ionizing radiation- A common source is the emission of x-rays and gamma rays from equipment used to gauge the density and thickness of pipes and to check welds.

Non-ionizing radiation- A major source is ultraviolet, infrared, and visible light radiation from welding. Radiation produced by the welding process is mainly non-ionizing.


### UV

Exposure to ultraviolet (UV) radiation can result directly from the arc or from a reflection off bright objects such as shiny metal or white clothing. It can cause "arc eye" when sight is not adequately protected.

### Symptoms of "Arc Eye"

Certain types of UV radiation can produce an injury to the surface and mucous membrane of the eye called "arc eye". The symptoms include:

- pain - ranging from a mild feeling of pressure in the eyes to intense pain in severe instances
- tearing and reddening of the eye and membranes around the eye
- sensation of "sand in the eye" or abnormal sensitivity to light
- inability to look at light sources (photophobia)

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## HOT WORK

Eyes become watery and painful anywhere from 2 to 24 hours after exposure. The condition may last 1–5 days but is usually reversible with no lasting effects. However, repeated exposure may result in scar tissue that can impair vision. UV exposure may also cause a temporary loss of visual sharpness called “fluorescence.” It may eventually lead to the development of cataracts in the eye if eye protection is not worn.

Skin reddening, commonly known as sunburn, is another hazard of UV exposure. Blistering may occur in extreme cases.

The intensity of UV radiation varies with the type of welding. Generally, the higher the temperature of the welding process the higher the UV radiation.

### Infrared

Infrared radiation is hazardous for its thermal or heating effects. Excessive exposure to the eye may cause damage.

### Visible light

Light is released at high intensity by welding. Short-term exposure can produce “flash blindness” in which vision is affected by after-images and temporary blind spots. Repeated exposure to high-intensity visible light can produce chronic conjunctivitis, characterized by red, tearful eyes.

### Noise

Sound waves over 85 dBA emitted at high intensity by welding equipment can lead to hearing loss. Noise has also been linked to headaches, stress, increased blood pressure, nervousness, and excitability. Welding noise is produced by the power source, the welding process, and by secondary activities such as grinding and hammering. Ear plugs or ear muffs must be worn when welding, cutting or grinding.

### Electric Shock

Electrical shock is the effect produced by current on the nervous system as it passes through the body. Electrical shock may cause violent muscular contractions, leading to falls and injuries. It may also have fatal effects on the heart and lungs. Electrical shock may occur as a result of improper grounding and/or contact with current through damp clothing or wet surfaces. Even if the shock itself is not fatal, the jolt may still cause welders to fall from their work positions.

Electrical burns are an additional hazard. The burns often occur below the skin surface and can damage muscle and nerve tissue. In severe cases, the results can be fatal. The extent of injury due to electrical shock depends on voltage and the body’s resistance to the current passing through it. Even low voltages used in arc welding can be dangerous under damp or humid conditions.

Welders should keep clothing, gloves, and boots dry and stay well insulated from work surfaces, the electrode, the electrode holder, and grounded surfaces.

### Chemical Hazards

Chlorinated solvents for degreasing, zinc chromate-based paint for anti-corrosion coatings, cadmium or chromium dusts from grinding, and welding fumes are all classified as chemical hazards.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

## HOT WORK

Arc welders are at particular risk since the high temperatures generated by the arc can release heavy concentrations of airborne contaminants.

Chemical hazards may injure welders through inhalation, skin absorption, ingestion, or injection into the body.

Damage to respiratory, digestive, nervous, and reproductive systems may result.

Symptoms of overexposure to chemicals may include nosebleeds, headaches, nausea, fainting, and dizziness.

The most common chemical hazards from welding are airborne contaminants:

Fumes, Gases and Vapours and Dusts


### Fumes

Some of the metal melted at high temperatures during welding vaporizes. The metal vapour then oxidizes to form a metal oxide. When this vapour cools, suspended solid particles called fume particles are produced.

Welding fumes consist primarily of suspended metal particles invisible to the naked eye. Metal fumes are the most common and the most serious health hazard to welders. Fume particles may reach deep into the lungs and cause damage to lung tissue or enter the bloodstream and travel to other parts of the body.

The following are some common welding fumes:

- Beryllium- is a hardening agent found in copper, magnesium, and aluminum alloys. Overexposure may cause metal fume fever. Lasting for 18–24 hours, the symptoms include fever, chills, coughing, dryness of mouth and throat, muscular pains, weakness, fatigue, nausea, vomiting, and headaches. Chronic exposure to beryllium fumes can result in respiratory disease. Symptoms may include coughing and shortness of breath. Beryllium is a suspected carcinogen.
- Cadmium coatings- can produce a high concentration of cadmium oxide fumes during welding. Cadmium-plated or cadmium-containing parts resemble, and are often mistaken for, galvanized metal. Overexposure to cadmium can cause metal fume fever. Symptoms include respiratory irritation, a sore, dry throat, and a metallic taste followed by cough, chest pain, and difficulty in breathing. Overexposure may also make fluid accumulate in the lungs and may cause death.
- Chromium- is found in many steel alloys. Known to be a skin sensitizer, it may cause skin rashes and skin ulcers with repeated exposure. Chromium also irritates mucous membranes in areas such as eyes and nose. Inhaled chromium may cause edema and bronchitis.
- Lead- can be found in lead-based paints and some metal alloys. Lead poisoning results from inhalation of lead fumes from these lead-based materials. The welding and cutting of lead or lead-coated materials is the primary source of lead poisoning for welders. Symptoms include loss of appetite, anemia, abdominal pains, and kidney and nerve damage.
- Nickel- is found in many steel alloys including stainless steel and monel. It is a sensitizing agent and in certain forms is toxic and carcinogenic. Nickel fumes can also produce cyanosis, delirium, and death 4 to 11 days after exposure.
- Zinc- is found in aluminum and magnesium alloys, brass, corrosion-resistant coatings such as galvanized metal, and brazing alloys. Inhaling zinc fumes during the cutting or welding of these metals may cause metal fume fever.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## HOT WORK

### Gases and Vapours

A gas is a low-density chemical compound that normally fills the space in which it is released. It has no physical shape or form. Vapour is a gas produced by evaporation. Several hazardous vapours and gases may be produced by welding.

Hydrogen fluoride (HF) gas- can be released by the decomposition of rod coatings during welding and irritates the eyes and respiratory system. Overexposure can injure lungs, kidney, liver, and bones.

Nitrogen oxide (NOx) gas- is released through a reaction of nitrogen and oxygen promoted by high heat and/or UV radiation. It is severely irritating to the mucous membranes and the eyes. High concentrations may produce coughing and chest pain. Accumulation of fluid in the lungs can occur several hours after exposure and may be fatal.

Ozone gas- is formed by the reaction of oxygen in air with the ultraviolet radiation from the welding arc. It may be a problem during gas-shielded metal arc welding in confined areas with poor ventilation. Overexposure can result in an accumulation of fluid in the lungs (pulmonary edema) which may be fatal.

Phosgene gas- is formed by the heating of chlorinated hydrocarbon degreasing agents. It is a severe lung irritant and overexposure may cause excess fluid in the lungs. Death may result from cardiac or respiratory arrest.

Phosphine or hydrogen phosphide- is produced when steel with a phosphate rustproofing coating is welded. High concentrations irritate eyes, nose, and skin.

**Asphyxiants** are chemicals that interfere with the body's ability to transfer oxygen to the tissues. The exposed individual suffocates because the bloodstream cannot supply enough oxygen for life.


There are two main classes of asphyxiants:

**Simple asphyxiants**- displace oxygen in air, thereby leaving little or none for breathing. In welding, simple asphyxiants include commonly used fuel and shielding gases such as acetylene, hydrogen, propane, argon, helium, and carbon dioxide. When the normal oxygen level of 21% drops to 16%, breathing as well as other problems begin, such as lightheadedness, buzzing in the ears, and rapid heartbeat.

**Chemical asphyxiants**- interfere with the body's ability to transport or use oxygen. Chemical asphyxiants can be produced by the flame cutting of metal surfaces coated, for instance, with rust inhibitors. Hydrogen cyanide, hydrogen sulphide, and carbon monoxide are examples of chemical asphyxiants—all highly toxic.

### Dusts

Dusts are fine particles of a solid that can remain suspended in air and are less than 10 micrometres in size. This means they can reach the lungs. Dusts may be produced by fluxes and rod coatings, which release phosphates, silicates, and silica. The most hazardous of these is silica which can produce silicosis.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## HOT WORK

### Fires and Explosions

There is always a threat of fire with welding. Fires may result from chemicals reacting with one another to form explosive or flammable mixtures.

In welding, oxygen and acetylene present the most common hazards of fire and explosion. Pure oxygen will not burn or explode but supports the combustion of other materials, causing them to burn much more rapidly than they would in air.

When exposed to high temperature, excess pressure, or mechanical shock, acetylene gas can undergo an explosive decomposition reaction.

### Preventive Measures

Welding hazards must be recognized, evaluated, and controlled to prevent injury to personnel and damage to property.

Types and effects of airborne contaminants produced by welding depend on the working environment, the kind of welding being done, the material being welded, and the welder's posture and welding technique.

Base metal- is an important factor in the production of fumes, vapours, and gases. The base metal will vaporize and contribute to the fume.

Coatings- such as rust inhibitors have been known to cause increased fume levels which may contain toxic metals. All paints and coatings should be removed from areas to be welded as they can contribute to the amount and toxicity of the welding fume.

Welding rod- is responsible for up to 95% of the fume. Rods with the fewest toxic substances can't always be used because the chemistry of the rod must closely match that of the base metal.


Shielding gas- used can affect the contaminants produced. Using a mixture of argon and carbon dioxide instead of straight carbon dioxide has been found to reduce fume generation by up to 25%.

Welding process variables- can have a big effect on the fume levels produced. Generally, fume concentrations increase with higher current, larger rods, and longer arc length. Arc length should be kept as short as possible while still producing good welds.

### Ergonomics

Here are some tips for a good working posture while welding:

- Learn to recognize symptoms of work-related musculoskeletal disorders. Repeated uncomfortable postures and tasks can cause injury.
- Avoid awkward body positions which cause fatigue, reduce concentration and lead to poor welds which may need to be repeated.
- Always use your hand to lower your helmet. Do not use a "jerking" motion of your neck and head.
- Position yourself in a stable, comfortable posture.
- Avoid working in one position for long periods of time.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## HOT WORK

- Always store materials and tools within normal reach.

### Ventilation

Ventilation is required for all welding and cutting. Adequate ventilation is defined as:

- the use of air movement to reduce concentrations of airborne contaminants below the acceptable limits in the worker's breathing zone and the work area
- prevent the accumulation of combustible gases and vapours
- prevent oxygen-deficient or oxygen-enriched atmospheres.

Natural dilution ventilation — The majority of AAROC projects will use natural dilution ventilation (i.e., welding outside) When using natural dilution ventilation, you must make sure to “keep your head out of the fume”. A portable fan can also be used if necessary, to keep fumes out of your work area.

### Fire Prevention

Sparks and slag from welding, cutting and grinding can travel great distances and may contact flammable materials or electrical equipment. Fires have started in smoldering materials that went undetected for several hours after work was done. Take the following steps to prevent fires and explosions:

- Obtain a hot work permit if needed
- Keep welding area free of flammable and explosive material
- Provide fire extinguishers suitable for potential types of fire. Know where the extinguishers are and how to use them
- Provide a firewatch where necessary—a worker to watch for fires for at least thirty minutes afterward

### Handling, Storing and Using Cylinders

#### Handling

- Do not accept or use any compressed gas cylinder which does not have proper identification of its contents
- Transport cylinders securely
- Protect cylinders and any related piping and fittings against damage
- Never drop cylinders or let them strike each other violently
- Chalk EMPTY or MT on cylinders that are empty
- Close valves and replace protective caps
- Secure transported cylinders to prevent movement or upset
- Always regard cylinders as full and handle accordingly

#### Storage

- Store cylinders upright in a safe, dry, well-ventilated location
- Never store flammable and combustible materials such as oil and gasoline in the same area
- Do not store cylinders near walkways, exits, or in places where they may be damaged or knocked over
- Do not store oxygen cylinders within 6 m (20 ft) of cylinders containing flammable gases unless they are separated by a partition at least 1.5 m (5 ft) high
- Store empty and full cylinders separately



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8


## HOT WORK

- Prohibit smoking in the storage area

### Using

- Open cylinder valves slowly. Only use the handwheel, spindle key, or special wrench provided by the supplier
- Always use a pressure-reducing regulator with compressed gases
- Before connecting a regulator to a cylinder, crack the cylinder valve slightly to remove any debris or dust that may be lodged in the opening
- Never allow sparks, molten metal, electric current, or excessive heat to come in contact with cylinders
- Never use oil or grease as a lubricant on the valves or attachments of oxygen cylinders
- Release pressure from the regulator before removing it from the cylinder valve
- When gas runs out, extinguish the flame and connect the hose to the new cylinder
- Purge the line before re-igniting the torch
- When work is finished, purge regulators, then turn them off. Use a proper handle or wrench to turn off cylinders.

Hoses and hose connections for oxygen and acetylene should be different colours. Red is generally used to identify the fuel gas and green the oxygen. Protect hoses from traffic, flying sparks, slag, and other damage. Avoid kinks and tangles. Repair leaks properly and immediately

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Operators, Vehicles, and Equipment</b>		
	PREPARED BY: Health and Safety Team	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 5	

## OPERATORS, VEHICLES, AND EQUIPMENT

### PURPOSE

To give all employees instructions for the care and use of their vehicles and equipment.

### SCOPE

#### Equipment- General

All workers must be competent for the type of equipment or vehicle they will be operating. All vehicles, machinery, tools and equipment shall be maintained in a condition that does not endanger a worker.

#### Equipment Pre-Start:

- All vehicles, machinery, tools and equipment must be used in accordance with the manufacturer's operating manuals.
- A daily circle check inspection shall be performed on all mobile equipment and commercial vehicles prior to start-up by the operator. A company inspection record has been developed for this purpose. Document the inspection and submit copies. Brake tests are included in the inspection for mobile equipment:

#### Equipment Brake Testing Procedures

All operators shall follow the manufacturer brake testing procedures for the type of equipment they are operating AND follow the procedures described in the Mining Regulations.

1. Test the brakes according to the manufacturer procedures. A copy of the procedure is provided in the operator's manual. Typically, the procedure is also copied, laminated and placed in the cab of the machine.
2. Test the brakes in accordance with this Mining Regulation:  
105. (1) When in use, a motor vehicle, other than a motor vehicle running on rails, shall,
  - (a) be in safe working condition;
  - (b) have brakes which will stop and hold the vehicle under full load conditions on all operating grades, slopes and ramps;

The Regulation above requires the operator to ensure that the machine can be stopped and held stationary by all braking systems with its maximum load on the maximum grade, slope or ramp in its area of operation.

(7) A procedure for the testing, maintenance and inspection of each motor vehicle shall be adopted and the procedure shall,

  - (a) schedule the testing of brakes, steering, lighting and other safety components prior to initial use of the motor vehicle for the shift;
  - (d) provide a record of the testing, maintenance, inspection and testing that has been carried out; and
  - (e) provide for the testing, maintenance and inspections to be performed by competent persons.

The Regulation above requires the operator to perform brake tests, among other items, prior to the initial use of the machine for the shift and to record the results on the pre-operational inspection records provided by AAROC. Follow all the instructions in the inspection.

#### Equipment Pre-Start:

- Pull cords and emergency stops are to be tested and logged for processing equipment.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Operators, Vehicles, and Equipment

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### OPERATORS, VEHICLES, AND EQUIPMENT

- Cables, chains, straps, hooks and other hoisting devices shall be inspected before use for damages like: cracks in welds; links or cords cut or kinked; and abrasions/scarring of materials that could weaken their strength and cause them to break.
- Regularly inspect catwalks and ladders for cracks or loose bolts so they don't fall or break when climbing or standing on.
- No worker shall operate a vehicle or machine unless they are competent to do so. Specialty module training must be completed within legislated timeframes.
- Passengers are not allowed in or on a vehicle/machine unless a seat and seat belt is provided, unless it is for training purposes.

#### Utility Locate Procedures

##### New Pit Locations:

All new locations must have utility locates completed before any excavation can begin.

1. AAROC management will arrange utility locate requests through Ontario One-Call and any other utility owner that is required.
2. The locates will be available onsite to the supervisor and all operators.
3. The following locate items will be adhered to:
  - All services and utilities must be accurately located and marked.
  - The locates must not be expired
  - The locates must clearly indicate the area of excavation
  - If paint marks or flags that mark the utility boundary are missing, call for re-locates. Do not guess where the utility is located.
  - If the service may pose a hazard, it must be shut off and disconnected. If it cannot be shut off or disconnected, the service owner shall be requested to supervise the uncovering of the service during excavation.
  - Pipes, conduits and cables for gas, electrical and other services in an excavation shall be supported to prevent their failure or breakage.

If there is any doubt as to the location of the utility, locates that are not clear, exposed utilities not shown on the locates, or any other issue, STOP work and call the utility company for help.

##### Existing Pit Locations / Client Locations:

Typically, all utility services are located prior to pit operations commencing. If utilities are located within the licenced pit boundaries, they will be clearly marked and/or fenced off to restrict access.

If an area that is not within the licence boundary needs to be excavated, follow the procedure for a new pit location.

If excavating at a Client location, please check with the Client prior to any excavation to determine if utilities are present or if locates are required.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Operators, Vehicles, and Equipment

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### OPERATORS, VEHICLES, AND EQUIPMENT

#### Overhead Powerlines

This section is intended to ensure that every reasonable precaution shall be taken to prevent hazards to workers due to energized electrical equipment.

An electrical hazard can be defined as:

- a dangerous condition where a worker could make electrical contact with energized equipment or a conductor, and from which the person may sustain an injury from shock and/or;
- there is potential for the worker to receive an arc flash burn, thermal burn, or blast injury.

Electric shock is the passing of electric current through the body.

An arc flash is a release of energy caused by an electric arc. The flash causes an explosive expansion of air and metal.

#### Mining Regulations

##### Sec. 159

- (1) Electrical work shall not be performed on energized equipment except where,
  - (a) de-energizing the equipment,
    - (i) would increase or introduce additional hazards, or
    - (ii) is not feasible due to equipment design or operational limitations;
  - (b) equipment and personal protective devices and clothing that are appropriate to the work are provided and used;
  - (c) the employer has established written measures and procedures for energized work to protect the health and safety of workers;
  - (d) no hazard from explosive or flammable materials exists; and
  - (e) all necessary precautions to work safely are taken.
- (2) Except as provided for in subsection (1), no object shall be brought closer than the distance specified in Column 2 of the following Table to an exposed, energized overhead electric supply line of the voltage specified in Column 1:

Column 1 Voltage of Powerline	Column 2 Minimum Distance
300 to 150,000 volts	3 Metres
150,000 to 250,000 volts	4.5 Metres
Over 250,000 volts	6 Metres

- 5) Machines that have movable or extendable booms must not be operated in close proximity to energized electrical supply lines unless,
  - (a) they are operated in accordance with subsection (1); or
  - (b) the operator of the machine has been authorized to perform such work and,
    - (i) there is a clearance between any part of the machine and the energized line that is more than the greater of,
      - (A) one-half the maximum horizontal reach of the boom, or
      - (B) the distance determined under subsection (2),



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Operators, Vehicles, and Equipment

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### OPERATORS, VEHICLES, AND EQUIPMENT

- (ii) the lines are disconnected and grounded,
  - (iii) the machine is a railroad crane operating on railroad tracks and the supply line is energized to less than 750 volts direct current, or
  - (iv) the supply lines are guarded against contact by any part of the machine or its load.
- (6) Subsections (2) to (5) apply only with respect to electrical lines installed on the surface and electrical equipment used on the surface.

### PROCEDURES

If a piece of equipment or vehicle may have the potential of encroaching the minimum allowable distance to an overhead powerline as stated in the Table, the following procedures are required:

- Arrange for a competent signaller to assist the operator/driver;
- Notify the operator/driver of the electrical hazard before work starts and
- Provide enough warning devices / signs in the vicinity of the hazard so at least one is always visible to warn the operator/driver.

Ensure that affected workers and operators are familiar with these procedures and will not proceed with the work until they are fully implemented.

When working at construction projects, similar procedures are required, however always check with the project supervisor before working in vicinity of overhead powerlines for the project specific procedures.

#### Equipment Operation:

- Three-point climbing procedures must be used when climbing into the cab of a machine or vehicle.
- Operators must always turn on all beacons and lights when travelling on public roadways, regardless of time of day, to ensure maximum visibility.
- All dump trucks must have an operating reverse alarm.
- All mobile equipment must have an operating reverse alarm. Before backing up (reversing) your equipment, check your blind spots. If blind spots can't be seen while seated, then either physically get out of the cab to check your path or use someone to guide you.
- Excavators must not reverse unless they swing to travel forward or use a signaller to reverse.
- All exposed moving parts must be guarded to prevent injury.
- All buckets, blades, forks or other devices shall be lowered to the ground when unattended by the operator, unless proper blocking or jacking is used (i.e. maintenance).
- No worker shall operate a backhoe or similar excavating machine in such a way that it or part of its load passes over a worker.
- Always be aware of overhead hazards, such as power lines. Equipment must maintain minimum distances from power lines. Please notify supervisor if working near a power line. Special procedures may apply.
- A functional parking brake must always be applied when a wheeled machine is unattended. If there is no parking brake or it is inoperable, then other means must be taken to prevent the vehicle/machine from rolling away.
- When operating a tractor backhoe, always ensure the parking brake is applied and the transmission in neutral before swinging the seat around to operate the rear attachments.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Operators, Vehicles, and Equipment

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### OPERATORS, VEHICLES, AND EQUIPMENT

- Operators shall not use personal devices or cell phones while operating equipment. The 2-way / CB radios must only be used when it is safe to do so. Do not use the radios when reversing the machine. Do not use radios when working in areas that require your full attention (i.e. near ground workers, etc....)
- If a dump truck or other vehicle gets stuck and needs help, never push the vehicle from the rear, always pull out the vehicle from the front with a strap or chain. Always get permission from the driver first.

#### Equipment Parked – Shutdown

- Machines must be locked and secured with the master key turned off or removed at the end of the shift, nights or when the machine is parked and unattended. This is to prevent unauthorized individuals from operating/starting the equipment.
- Store attachments, tools, buckets, forks, etc.. in safe and secure areas when finished with them, even if just for a few minutes. Make sure they are not able to tip over, fall or move suddenly (i.e. wedge loader forks into a stockpile).
- Unsafe or hazardous vehicles/machines/tools must be locked and tagged out and the supervisor must be notified immediately.

#### Lifting Stackers

Incidents have occurred when chains used to lift stackers have unexpectedly failed and the stacker crashed to the ground.

Please follow these procedures when lifting stackers and conveyors:

- Use the correct chain.

(½" Grade 80 chain has a lifting capacity of 5400 kg).

If unsure of which chain to use, ask someone who knows.

- Do not use the stacker lifting chain for other tasks (i.e. pulling out trucks)
- When lifting the stacker, lift straight up and do not allow the chain to contact or rest on the bucket's cutting edge.
- Inspect your chain before use for cracks, damage or stretched links. Get replacement as required.
- DO NOT go or work under a stacker while it is being lifted or maneuvered with the bucket and/or chains. To clean around the kingpin, use a long-handled scraper. Inspect from a safe distance beside the stacker, not under it.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Pit Traffic Safety

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

## PIT TRAFFIC SAFETY

### PURPOSE

To ensure all employees understand vehicle and pedestrian traffic policies in the pits. Loading and hauling practices are also outlined.

### SCOPE

#### Pit Traffic, Roadways, and Traveled Areas

- Roads must be regularly maintained to be free of washouts and major potholes.
- Roads must be maintained to minimize hazards from slipping or skidding of vehicles.
- Roadways must enable vehicles to pass each other safely and;
- Roads must avoid steep grades wherever practical

#### Illumination

Most pits have outdoor artificial lighting at the scalehouse and employee parking areas to provide illumination in the early morning or evening hours.

Processing operations use artificial lighting from the mobile equipment or use lighting from control towers/trailers.

If night-time operations are being conducted in other areas of the pit where lighting is unavailable, then arrangements must be made to use portable light stands as needed.

#### Traffic Management Regulations

An employer at a mine shall, in consultation with the joint health and safety committee or health and safety representative, develop and maintain a written traffic management program.

The program shall include measures and procedures to,

- a) prevent collisions, of motor vehicles, that may endanger the health and safety of workers by addressing hazards relating to reduced or impeded visibility of motor vehicle operators; and
- b) protect the health and safety of workers and pedestrians who may be endangered by the movement of a motor vehicle.
- c) A copy of the program shall be provided to the joint health and safety committee or health and safety representative and shall be kept readily available at the mine site.
- d) The program shall be reviewed at least annually.
- e) The Traffic Management Program, including the Risk Assessment Checklist, Traffic Plan and Site Map will be posted in the scalehouse at each pit location.

#### Pit Traffic Safety

- All vehicles must adhere to the posted speed limits and warning signs.
- Vertical drops, road edges, cliffs or accesses to deep water must be protected by berms of half the height of the largest tires in operation in the pit. This includes tipping areas and fill dumps.
- Trees and other vegetation or materials within 2 metres of the rim of a surface mine and likely to endanger a person, must be removed.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Pit Traffic Safety

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### PIT TRAFFIC SAFETY

- Right of way is given to loaded vehicles and larger equipment when working or traveling in a pit. This is because of equipment blind spots and loaded vehicles require greater distances to stop than unloaded vehicles.
- Dust control measures shall be taken on roadways as necessary.

#### **Pedestrians, Visitors and the General Public**

- Customers in small vehicles or those unfamiliar with the pit will be directed to marked "safe zones" to wait to be loaded or escorted by the loader operator.
- The above customers must remain inside their vehicles unless directed by the loader operator. The operator must verbally direct customers where to stand when loading a vehicle or trailer. If the customer ignores the request, the operator should cease loading and redirect the customer before commencing again.
- Cars and small trucks must never be allowed to park along side of a stockpile that is not in natural repose.
- No customers are allowed to load themselves unless they are within a safe zone.
- All customers must be given a weigh ticket so they are aware of their gross weight.

#### **Dump Truck Operation**

Dump trucks and dump trailers can and have tipped over when their boxes were lifted. The result can be serious injury or death to the driver and/or nearby workers. Serious vehicle and property damage can also occur.

#### **Factors that can cause the truck or box to tip over:**

- slightly sloping or uneven ground level
- material that gets stuck in the box causing an imbalance
- large portion of loads caught in tailgates
- soft ground under tires
- mechanical defects

### PROCEDURES

#### **Operating:**

- Ensure a properly documented pre-operational vehicle inspection has been completed.
- Check in with scale attendant or loader operator when first arriving to pit.
- Seat belts must be worn when operating vehicle.
- Obey all Highway Traffic Act regulations. Obey all warning / traffic signs.
- Follow all proper haul routes.
- Windshields, windows and mirrors must be kept clean to ensure good visibility.
- Use 3-point contact when entering or exiting the vehicle.
- Report all incidents or hazards to the loader operator or scale attendant.

#### **Loading:**

- The location of the driver must be known by the operator at all times. Stay inside the truck cab while being loaded.
- Watch the load being loaded with your mirrors; notify the operator right away if you see any issues especially on the blind side.
- Communicate with the operator when the loading is complete.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Pit Traffic Safety

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### PIT TRAFFIC SAFETY

- Ensure your weight is within allowable limits before leaving the pit.
- Truck drivers must ensure their load is secured (tailgate locked and no loose material to spill onto road) and tarped before leaving pit.

#### Unloading:

- When material is dumped from a vehicle, the dump point shall include features (i.e. berms) to prevent the vehicle from going over the bank or edge.
- When dumping on top of a fill dump or stockpile, ensure the unloaded material will not become a hazard for any workers, vehicles that may be located at the bottom of the slope.
- When reversing, truck drivers must be mindful of any pedestrians or other traffic. Use a signaler if necessary.
- Drivers must always visually inspect the area above them for overhead wires or other hazards.
- Trucks must be level enough to dump safely. While raising the box, maintain a good centre of gravity. If you suspect the box is off centre, immediately lower the box and re-position the truck.
- Stay in the cab during dumping and keep your seatbelt on. You're less likely to be injured in a rollover. If the truck starts to tip DON'T TRY TO JUMP OUT.
- Always try to lower the box as soon as the load has been dumped. This lowers the centre of gravity.
- Check the box periodically to ensure all loads are emptying properly. Clean out as needed. Use an excavator to clean out if needed.
- Check box when dumping sticky material like clay. It may stick to one side of the raised box or it may stick in the upper portion, creating a top-heavy or unbalanced load.
- Be aware of frozen loads that may become stuck in the box.
- Report all mechanical issues. Stability can be affected by poor suspension, uneven tire pressure, and worn or inadequate lifting systems.
- Ensure that the tailgate locks work properly.
- Ground workers should always wear high-visibility clothing or safety vests. Make eye contact with the driver when approaching.
- Never stand, work or use machinery beside a truck or trailer when it is dumping. Be visible and stay out of the danger zone.

#### REQUIREMENTS

- Mining Regs. 854, Sections 18, 90-92, 105.1, 116, 118



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Stockpile and Pit Face Safety

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### STOCKPILE AND PIT FACE SAFETY

#### PURPOSE

All workers must understand the hazards and risks of working around stockpiles and pit faces and the procedures used to control those hazards.

#### SCOPE

All work must meet the requirements of the Occupational Health and Safety Act and Regulation 854 Mines and Mining Plants.

#### General Rules

- Stockpiles shall be inspected for hazardous conditions regularly by a competent person.
- Stockpiles shall be made safe before an operator/machine is allowed to work close to or on top of the stockpile.
- The top of a stockpile shall be graded to promote surface runoff and no ponding of water shall be allowed on top of the pile.
- When removing earth, clay, sand or gravel by means of powered equipment:
  - The working face shall be sloped at the angle of repose; or
  - The vertical height of the working face shall not be more than 1.5 metres above the maximum reach of the equipment.
- Stockpiles in safe zones must not be higher than 3 metres.
- Persons on foot must maintain a distance no less than the height of a working or vertical pit face. A minimum of a 1:1 relationship between height of face to distance to the base must be maintained.
- Persons on foot at the top of a pit face must maintain a distance greater than 3 metres from the edge. If cracks on the surface are seen; then stay 3 metres from the crack.
- There shall be no access of heavy equipment within 2 metres of the crest of a slope unless the loose material has been pushed and compacted with a bucket. On a slope that has an overall profile steeper than the angle of repose, the crest of the pile shall be excavated in benches using an excavator or equivalent.
- Material must be dumped back from the edge of a pile or face. Material should be pushed by a machine using a "bumper" of material in front of the machine at the edge.
- Berms of appropriate height should be used to protect the edges of piles or pit faces in traveled areas. The height of the berm must be a minimum of the radius of the largest wheel in the pit.
- Trees and other vegetation or materials within 2 metres of the rim of a surface mine and likely to endanger a person, must be removed.
- Overhangs, undercutting or tunneling of material both in a stockpile or pit face is not permitted.

#### Stockpile Characteristics

- Processed granular material is usually placed in a stockpile by conveyors or by carrying the material by bucket or truck. Stockpiles created by these methods from materials found in our pits will typically have a slope at its edges ("Angle of Repose") of about 30 to 37 degrees. This angle of repose is the natural state at which the material falls and conforms to. When loading out of a stockpile the angle of repose and the natural state of the granular material no longer exists.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Stockpile and Pit Face Safety

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### STOCKPILE AND PIT FACE SAFETY

- In dry warm conditions granular material found in our pits will generally act more free-flowing and the material will continually fall towards its angle of repose. This falling of material is not instantaneous though and can happen at any moment.
- In the winter and in wet conditions materials found in our pits will freeze or stick and not naturally fall to their angle of repose. Overhangs may occur in these situations which are unsafe.
- Regardless of weather conditions some materials will not free flow to their angle of repose. These materials possess an inherent stickiness property and will form overhangs even in the summer. Examples are recycled asphalt and concrete.
- When external forces are placed upon a stockpile its contents may shift because of them. A good example of this is when weight from a piece of machinery is placed on top of the pile near the tipping edge. The weight placed on the stockpile can cause the material to fall to a new angle of repose. The effects of this can cause the piece of equipment to fall with the material supporting its weight. This can be unsafe.

#### Stockpile Mining Safety Rules

- Stockpiles shall be excavated in such a manner so as not to result in a concave working face on a horizontal plane.
- Loaders must excavate a stockpile at right angles. Loading shall be uniform along the entire working face.
- Trucks must not dump at the top of the pile where the toe (bottom) has been removed.
- Samples must not be taken from a stockpile by hand unless it is in complete repose and no other activity is being performed on the pile. (i.e. Machines traveling on top of the pile). The preferred method of sampling is to use a loader and create a sampling platform less than 1 metre high and in a safe location away from the working face of the stockpile.

#### PROCEDURE

- Overhangs and vertical cut faces in stockpiles are potential hazards. Their stability can be reduced by wet conditions caused by precipitation and snow melt.
- If an overhang develops an unsafe condition occurs. The overhang must be dealt with before any further loading or excavating can occur. If the loader can reach the overhang, then the operator must knock down the overhang before continuing.
- If the overhang cannot be removed safely by the mining equipment, then it must be protected from access using berms and/or safety barrels and signage. The operator must also notify their supervisor of the unsafe condition.
- Removing an overhang that cannot be managed by a loader can be performed by a hydraulic excavator. The operator of the excavator must be trained in managing overhangs. When knocking down the overhang the excavator must never be positioned in the falling path of the overhanging material. The preferred method of knocking down an overhang is to excavate behind the overhang from on top of the pile.
- The stockpile may be excavated in benches each not exceeding the allowable height of the vertical face.
- The loader operator can load from another safe area of the stockpile if an overhang exists on one side. Try to load from the side of the stockpile which has the greatest exposure to the south.
- If because of the material type or season, the stockpile is becoming prone to overhangs, it must be stockpiled no higher than the maximum reach height of the machine mining out of it. i.e. A 980H Cat loader will reach



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Stockpile and Pit Face Safety

PREPARED BY: Health and Safety Team

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### STOCKPILE AND PIT FACE SAFETY

6.36m in height. A 980H loader cannot mine a pile greater than 6.36m that is prone to overhangs. The reason for this is that the loader operator can manage the overhang themselves if it occurs.

- In the event that the stockpile height exceeds the vertical reach of the equipment and there is a likelihood that overhangs will occur, the excavation shall proceed in benches beginning from the upper part of the pile.
- Since in the winter all materials in our pits are susceptible to overhangs, stockpiles will be constructed with a "winter loading face" which consists of material piled no higher than the reach of the machines loading out of it. A part of or the entire stockpile can be constructed with a winter loading face. Construction of winter stockpiles should be attempted in the fall season before frost sets in.
- If space is limited more than one lift/bench can be constructed when creating the winter stockpile. Ramps double the width of the loader and at a slope of 1:10 should be constructed to reach the upper bench levels. Large enough loading and turn around areas must also be constructed with safety berms at their edges. Bench heights are determined by the maximum reach of the machine used to load material out of the stockpile.

### REQUIREMENTS

- Mining Regs. 854, Sections 61, 88





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

# **WORKPLACE ASSESSMENTS**

## **PURPOSE**

This section outlines AAROC Equipment's workplace violence and harassment policy and program. It details the responsibilities of the employer and gives information and instructions to workers who may be exposed to violence and/or harassment.

## **DEFINITIONS**

Workplace Violence means:

- a) The exercise of physical force by a person against a worker, in a workplace, that causes or could cause physical injury to the worker,
- b) An attempt to exercise physical force against a worker, in a workplace, that could cause physical injury to the worker.
- c) A statement or behavior that it is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker.

Examples of workplace violence include:

- verbally threatening to attack a worker;
- leaving threatening notes at or sending threatening e-mails to a workplace;
- shaking a fist in a worker's face;
- hitting or trying to hit a worker;
- wielding a weapon at work;
- throwing an object at a worker;
- sexual violence against a worker;
- kicking an object the worker is standing on such as a ladder or
- trying to run down a worker using a vehicle or equipment.

### **Domestic Violence**

A person who has a personal relationship with a worker- such as a spouse or former spouse, current or former intimate partner or a family member- who may physically harm, or attempt or threaten to physically harm, that worker at work. In these situations, domestic violence is considered workplace violence.

### **Workplace Harassment:**

- a) engaging in a course of vexatious comment or conduct against a worker in a workplace that is known or ought reasonably to be known to be unwelcome or;
- b) workplace sexual harassment

### **Workplace sexual harassment:**

- a) engaging in a course of vexatious comment or conduct against a worker in a workplace because of sex, sexual orientation, gender identity or gender expression, where the course of comment or conduct is known or ought reasonably to be known to be unwelcome, or;
- b) making a sexual solicitation or advance where the person making the solicitation or advance is in a position to confer, grant or deny a benefit or advancement to the worker and the person knows or ought reasonably to know that the solicitation or advance is unwelcome



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

## **WORKPLACE ASSESSMENTS**

Workplace harassment can involve unwelcome words or actions that are known or should be known to be offensive, embarrassing, humiliating or demeaning to a worker or group of workers. It also includes behavior that intimidates isolates or even discriminates against the targeted individual(s).

### **This may include:**

- making remarks, jokes or innuendos that demean, ridicule, slander, intimidate, or offend;
- displaying or circulating offensive pictures or materials in print or electronic form;
- bullying;
- repeated offensive or intimidating phone calls or emails;
- inappropriate sexual touching, advances, suggestions or requests.

### **What isn't workplace harassment?**

Reasonable action or conduct by an employer, manager or supervisor that is part of their normal work functions would not normally be considered workplace harassment. This is the case even if there are unpleasant consequences for a worker. Examples include:

- changes in work assignments;
- scheduling;
- job assessment and evaluation;
- workplace inspections;
- implementation of dress codes or PPE and
- disciplinary action.

Differences of opinion or minor disagreements between co-workers would also not generally be considered workplace harassment.

In addition, any behavior that would meet the definition of workplace violence would not be considered workplace harassment.

### **Workplace Risk Assessments**

- Management will review and assess the risks of workplace violence that may arise from the nature of the workplace, type of work or conditions of work.
- Consider the circumstances of AE workplaces and circumstances common to other similar workplaces.
- Develop measures and procedures to control identified risks that are likely to expose a worker to workplace violence and harassment.
- Advise the J.H.S.C. of the risk assessment results.
- Repeat the assessments as often as necessary to ensure the workplace violence/harassment policy and program effectively protects workers.

Management will involve the Joint Health and Safety Committee in developing written programs and procedures, regarding workplace harassment which addresses:

- the reporting of incidents;



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

## **WORKPLACE ASSESSMENTS**

- the investigation process;
- how the investigation information will be kept confidential, except for the purposes of taking corrective action or required by law;
- training under the programs and procedures; and
- an annual review of the programs and procedures.

## **PROCEDURES**

All workers must consider the following safe work procedures:

### **Mobile Service Mechanic**

- Ensure you are able to call for help. Use 2-way radios and/or cell phone in an emergency.
- Utilize "Lone Worker" monitoring software along with vehicle GPS.
- Passengers are restricted to company employees or those satisfactory to the driver. The general public are not given access to vehicles.
- Only perform high risk maintenance or service activities when other workers are present.
- Keep vehicle well maintained.
- Never leave your vehicle unlocked at night or on breaks.
- Park all vehicles/equipment in designated safe areas.
- Work the same operating hours as other workers if possible. If working alone, follow written safety procedures for working alone. Use work alone monitoring app.
- Report all suspicious persons to supervisor.

### **Main Office / Shop**

- Maintain outside lighting and keep paths, walkways and parking areas clear of obstructions.
- Maintain signs for visitor / public entrances.
- Keep all doors not in use locked
- Maintain security alarm and security cameras.
- Front reception desk and shop service desk should be staffed at all times during work hours. Keep all windows, doors and sightlines clear.
- All visitors must report to front reception desk and/or shop service desk and only enter employee areas of the building when escorted/permitted by an employee.
- Keep all cash and other valuable goods locked and hidden.
- Designate a safe meeting room(s) for employees during emergency.
- Keep all lines of communication operating- 2-way radios, phones.
- Work in groups if possible. Maintain regular operating hours with other employees. If working alone, lock all non-essential doors. Follow working alone policy.

### **Emergency Response Plan- Summoning Assistance**

Workers shall:

- Immediately call for assistance if they are a victim of or witness workplace violence. If alone, call for 9-1-1 police assistance, followed by a call to your supervisor. If working in a group, call the supervisor or co-worker.
- EMERGENCY PHONE NUMBERS shall be posted at all worksites.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

# **WORKPLACE ASSESSMENTS**

Supervisors shall:

- Call 9-1-1 and get assistance from the police in a violent situation. If required, call for ambulance services as well.
- Keep all other employees in a safe area away from the parties involved.
- Do not attempt to physically separate the parties involved if the violent behavior is on-going.
- Safely remove from the area anything that could be used as a weapon.
- Provide all necessary information to police if required.
- Report the incident to senior management as soon as possible.

## **Reporting Workplace Violence / Harassment**

All workers who have been the victim of or witnessed workplace violence or harassment shall report the following information to their supervisor:

- Date, time of the incident;
- Location of the incident;
- Who were the parties involved;
- Description of the altercation/incident. Contributing factors. Physical or verbal issues. Outcome.
- Any information about other witnesses;
- Possible recommendations for prevention.

**NOTE:** If the Supervisor is the alleged harasser, then the victim can report to a Manager, Owner, the Ministry of Labour or Police.

## **Investigating Workplace Violence / Harassment**

Management will investigate all matters involving violence or harassment in the following manner:

- Supervisors will report the incident to management.
- Parties involved will meet to discuss the incident. Corrective actions and solutions will be recommended. (Police actions may determine outcomes).
- If the parties are satisfied with management's response, no further action will be taken. The written investigation and corrective actions will be filed.
- If the parties are not satisfied with management's actions, the Ministry of Labour may be called upon to investigate and offer recommendations.
- The written investigation and any corrective actions shall be available to both the victim and alleged harasser. Privacy concerns and confidentiality will be respected when writing and reviewing reports.

**NOTE:** Third-party agencies specializing in workplace violence and harassment may be called in to investigate.

- All revisions to the program to prevent any future recurrences of the reported incident will be given to the J.H.S.C.

## **Information about a Person with a History of Domestic Violent Behavior**



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

### **WORKPLACE ASSESSMENTS**

The Occupational Health and Safety Act clarifies that employers and supervisors must provide workers with information, including personal information, related to a risk of workplace violence from a person with a history of violent behavior.

However, this duty is limited and applies only when the:

- worker can be expected to encounter the violent person in the course of his or her work and;
- risk of workplace violence is likely to expose the worker to physical injury.

Employers and supervisors must also not disclose more information than is reasonably necessary for the protection of a worker from physical injury.

The employer has to take into account a person's right to privacy under certain laws in addition to a workers' right to be informed of workplace violence risks under the O.H.S.A.

It is the policy of AAROC Equipment to seek legal advice to comply with this regulation when this type of information is discovered or reported.

#### **Domestic Violence**

Under the O.H.S.A. an employer must take every precaution reasonable in the circumstances for the protection of workers when they are aware, or ought reasonably to be aware, that domestic violence may occur in the workplace, and that it would likely expose a worker to physical injury.

Workers can report their concerns to their employer if they fear domestic violence may enter the workplace.

Employers must be prepared to investigate and deal with these concerns on a case-by-case basis. In developing a plan, employers and workers may be able to work with the police, courts or other organizations who may already be involved.

It is the policy of AAROC Equipment to seek legal advice to comply with this regulation when this type of information is discovered or reported.

#### **Work Refusals**

Under the O.H.S.A. a worker can refuse to work if he/she has reason to believe they may be endangered by workplace violence. A worker may refuse work if he/she reasonably determines that a threat to exercise physical force could cause injury to the worker.

However, work cannot be refused on the grounds of workplace harassment.

The Act sets out a specific procedure that must be followed in a work refusal. It is important for employers, supervisors, workers and the J.H.S.C. to understand and follow this procedure.

All work refusals will follow the procedure detailed in AE's HSE Program.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

## **WORKPLACE ASSESSMENTS**

### **REQUIREMENTS**

**Legislation:**

Occupational Health and Safety Act, Section 32

**Training:**

All employees will undergo a review and understanding of the policy and program



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Emergency Response Planning**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# **EMERGENCY RESPONSE PLANNING**

## **PURPOSE**

The OHSA requires that Emergency Response Procedures be developed for each workplace. This section outlines the requirements necessary to develop these procedures.

## **SCOPE**

### **HOW TO DEVELOP A PLAN**

Planning for the workplace will be conducted by the Safety Team or Supervisor.

Development of the plan should include the following elements:

#### **Hazard identification**

Involves a review of potential onsite hazards. It should be followed up with an appropriate emergency response to control the hazard. A review should include the following points:

- building location / layout
- fire hazards
- environmental concerns
- SDS review
- processes (shop)

#### **Emergency Resources**

Identify which resources are available and have plans in place for any deficiencies.

Important resources include:

- 911 emergency system
- emergency contact list / hospital information
- fire prevention and protection plan
- first aid kits / trained workers in CPR
- spill kits
- WHMIS training
- repair and maintenance procedures and employee training

Be prepared and have the resources and the people that will manage them, set up before the job begins.

#### **Communication Systems**

Reliable communication equipment must be used to relay accurate information quickly. It is always a good idea to have a backup system in place.

Equipment includes:

- Telephone landlines
- Cell phones
- 2-way radios

Emergency phone numbers, supervisor numbers, hospital information and the site location will be posted on the Safety Board in the Shop Lunchroom.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Emergency Response Planning**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# **EMERGENCY RESPONSE PLANNING**

## **Administration of the Plan**

Administering and organizing the emergency plan is vital to its effectiveness. Normally the person in charge of emergency response has this task (i.e., Supervisor). They must ensure:

- That everyone understands their roles and responsibilities
- That emergency resources are kept at adequate levels

It is important to review the plan after an emergency in case changes are required.

## **Communication of the Procedure**

To be effective, the Emergency Response procedure (see below) must be clearly communicated to all employees.

## **Debriefing and Post-Traumatic Stress Procedure**

The recovery process after an emergency is a critical step. Many people are unaccustomed to dealing with emergencies and may need assistance or recovery time after an emergency.

Debriefing is necessary to review how well the plan worked and review corrections that may be needed.

## **PROCEDURES**

In case of an emergency, the supervisor on site shall take control and proceed according to the following guidelines:

### **1. ASSESS THE SITUATION**

Remain calm

Identify the emergency, problem, hazards, and who is involved.

Try to identify the cause that must be controlled

### **2. TAKE COMMAND**

The most qualified person on site should take charge

Assign duties to specific individuals

### **3. CALL EMERGENCY SERVICES**

Charge someone with the responsibility to call an Ambulance or Fire Department and instruct him/her to report back with the information as to when help will arrive.

A list of emergency numbers is posted.

Never leave the victim alone.

### **4. ADMINISTER FIRST AID**

Safeguard the victim(s) and the area. Control the energy source causing the emergency if safe to do so.

Evacuate area if necessary, for protection.

Ensure that First Aid is provided by a qualified person.

Get AED ready for use

There should be at least one person at the workplace who is trained to administer First Aid / CPR.

Organize the workforce for emergency assignments



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Emergency Response Planning**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### **EMERGENCY RESPONSE PLANNING**

#### **5. PROVIDE PROTECTION**

Protect equipment, materials, environment, and accident scene from continuing damage or further hazards. Divert traffic, suppress fire, prevent objects from falling, shut down equipment or utilities, and take other necessary measures. Use spill response if required.  
Protect all persons (workers and members of the public) from dangers arising from the emergency.

Preserve the accident area; only disturb what is essential to maintain life or relieve human suffering and prevent immediate or further losses.

#### **6. MAINTAIN CONTACT**

Keep emergency services informed of the situation.  
Contact utilities such as gas and hydro where required  
Exercise increasing control over the emergency until hazards are controlled

#### **7. GUIDE EMERGENCY VEHICLES**

Have someone waiting to alert and guide the emergency vehicle to the location of the emergency scene.

#### **8. OBTAIN NAME OF HOSPITAL OR EMERGENCY CENTRE**

Get information (name, address, phone number) about the location where the victim is being taken.

#### **9. ADVISE MANAGEMENT**

Contact Management with details of the accident. The information must be detailed enough for Management to notify relatives of the victim and the authorities if necessary.

#### **10. PRESERVE ACCIDENT SCENE**

Barricade or rope off the area to avoid disturbing the conditions at the time of the accident as much as practical. The area should remain isolated until authorities have an opportunity to investigate the accident.  
Complete the required Incident Report form.

#### **11. PRESS RELATIONS**

Refer all questions from the press or news media to a delegated person, most likely a manager or owner.

### **REQUIREMENTS**

#### **Legislation:**

Occupational Health and Safety Act, Section 25(2)(h)

#### **Training:**

Employees will understand that the workplace has emergency procedures and contact information posted on the safety board



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Employee Safety Training

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

# EMPLOYEE SAFETY TRAINING

## PURPOSE

The Occupational Health and Safety Act requires that workers receive information, instruction and competent supervision to protect their safety. AE believes that effective training is absolutely essential for all workers and their safety.

## SCOPE

### Worker / Supervisor Training

All workers will have an orientation session prior to beginning work. This will include:

- Review of the New Worker Orientation: in-person and/or digitally

Supervisors will also receive:

- MOL Supervisor Awareness training online

### Worker Awareness

All workers will receive the mandated "Worker Awareness" training either in-person or digitally.

### First Aid

The company follows the WSIB regulations for worker training in Standard First Aid / CPR for the workplace.

### WHMIS

All employees will receive WHMIS training as required by current legislation.

### Fire Prevention

Employees will review the section of the AE HSE program which includes fire extinguisher use and monthly inspection. Employees will also review fire prevention and protection for 3003 Page St.

### Transportation of Dangerous Goods

Required employees will be trained in the transportation of dangerous goods by a qualified third-party instructor. Training is currently required every 3 years.

### Driver Training (MTO regulations where applicable)

Drivers may be required to obtain specific classes of licences (ie. AZ, DZ)

### Forklift Operator

All workers who operate a forklift will be trained by a qualified third-party instructor.

### Crane Operation

All workers who operate overhead and mobile 0-8 cranes will be trained by a qualified third-party instructor.

**Joint Health and Safety Committee-** Part 1 and 2 certification (where applicable)

**Surface Miner Training Program - Common Core**



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Employee Safety Training**

PREPARED BY: HEALTH AND SAFETY TEAM

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REVISION # 1

# OF PAGES: 2

### **EMPLOYEE SAFETY TRAINING**

The Surface Miner Program is a series of training standards designed to ensure all workers in surface mines are trained to do their job safely. Some AE employees may be trained in the three Common Core Modules – ‘Work Safely in the Job Environment’, ‘Lock and Tag’ and ‘Operate Hand and Power Tools’.

#### **Job Specific Training**

Training may be required for some employees working in specialized jobs or performing certain tasks. Training may include written procedures or instructions or formalized courses and training sessions.

#### **Annual Health and Safety Meeting**

The company may convene a meeting annually to address Health and Safety. This meeting is designed to be a general review of the company’s health and safety policy, program and individual responsibilities of all parties. The meetings may be conducted in-person or virtually.

### **REQUIREMENTS**

#### **Legislation:**

WSIA

OHSA: Sections 9, 37, various



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Pre-Start Health and Safety Reviews

PREPARED BY: HEALTH AND SAFETY TEAM

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REVISION # 1

# OF PAGES: 4

### PRE-START HEALTH AND SAFETY REVIEWS

#### PURPOSE

Industrial establishments meeting the definition of “factory” must complete Pre-Start Health and Safety Reviews (PSR’s) in their workplace as required.

#### DEFINITIONS

##### Factory is defined as:

a building or place other than a mine, mining plant or place where homework is carried on, where,

- I. any manufacturing process or assembling in connection with the manufacturing of any goods or products is carried on,
- II. **in preparing, inspecting, manufacturing, finishing, repairing, warehousing, cleaning or adapting for hire or sale any substance, article or thing, energy is,**
  - a. **used to work any machinery or device, or**
  - b. **modified in any manner,**
- III. any work is performed by way of trade or for the purposes of gain in or incidental to the making of any goods, substance, article or thing or part thereof,
- IV. any work is performed by way of trade or for the purposes of gain in or incidental to the altering, demolishing, repairing, maintaining, ornamenting, finishing, storing, cleaning, washing or adapting for sale of any goods, substance, article or thing, or
- V. **aircraft, locomotives or vehicles used for private or public transport are maintained**

It would appear from the definition, that the AE shop is identified as a factory.

#### SCOPE

##### What is a PSR?

A pre-start health and safety review (PSR) is an in-depth examination of an apparatus, structure, protective element or process. Section 7 of the Industrial Regulation sets out requirements to ensure that a timely professional review identifies specific hazards. The PSR includes a written report that outlines all areas of non-compliance and the measures necessary to achieve compliance (steps, actions or engineering controls).

##### Circumstances Described in the **Section 7 Table**:

- **Flammable liquids** → **AE shop**
- Guarding
- **Rack and stacking structures** → **AE shop**
- Spray booths
- Dust collector for easily ignitable dust
- Molten metal in a foundry
- **Lifting devices** → **AE shop**
- **Chemical processes** → **AE shop**



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Pre-Start Health and Safety Reviews**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **PRE-START HEALTH AND SAFETY REVIEWS**

<b>Item</b>	<b>Applicable provisions of this Regulation</b>	<b>Circumstances</b>
1.	Subsections 22 (1), (2) and (4)	Flammable liquids are located or dispensed in a building, room or area.
2.	Sections 24, 25, 26, 28, 31 and 32	Any of the following are used as protective elements in connection with an apparatus: 1. Safeguarding devices that signal the apparatus to stop, including but not limited to safety light curtains and screens, area scanning safeguarding systems, radio frequency systems and capacitance safeguarding systems, safety mat systems, two-hand control systems, two-hand tripping systems and single or multiple beam systems. 2. Barrier guards that use interlocking mechanical or electrical safeguarding devices.
3.	Clause 45 (b)	Material, articles or things are placed or stored on a structure that is a rack or stacking structure.
4.	Section 63	A process involves a risk of ignition or explosion that creates a condition of imminent hazard to a person's health or safety.
5.	Section 65	The use of a dust collector involves a risk of ignition or explosion that creates a condition of imminent hazard to a person's health or safety.
6.	Sections 87.3, 87.4, 87.5 and 88, subsections 90 (1), (2) and (3), and sections 91, 92, 94, 95, 96, 99, 101 and 102	A factory produces aluminum or steel or is a foundry that melts material or handles molten material.
7.	Sections 51 and 53	The construction, addition, installation or modification relates to a lifting device, travelling crane or automobile hoist.
8.	Sections 127 and 128	A process uses or produces a substance that may result in the exposure of a worker in excess of any exposure limit set out in Regulation 833 of the Revised Regulations of Ontario, 1990 (Control of Exposure to Biological or Chemical Agents), Ontario Regulation 278/05 (Designated Substance — Asbestos on Construction Projects and in Buildings and Repair Operations) or Ontario Regulation 490/09 (Designated Substances) all made under the Act.

#### **What must the pre-start health and safety review report include?**

A written report is required that must contain the following:

1. Details of measures that must be taken to bring the apparatus, structure, protective element or process into compliance with the specified provisions of the Industrial Regulations listed in the section 7 table.
2. Details of measures to protect the health and safety of workers that are to be taken before testing is carried out if testing is required before the apparatus or structure can be operated or used or before the process can be used.
3. Details of the structural adequacy of the apparatus or structure if item 3 or item 7 of the section 7 table applies.
4. The signature of the person performing the pre-start health and safety review and the date it was performed.
5. If a professional engineer performed the PSR, his or her seal.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Pre-Start Health and Safety Reviews

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### PRE-START HEALTH AND SAFETY REVIEWS

6. If the person performing the PSR is not a professional engineer, details of his or her special, expert, or professional knowledge or qualifications.

#### Who may perform a pre-start health and safety review?

A PSR required under items 1, 2, 3, 4, 5, 6, or 7 must be conducted by a professional engineer.

A PSR required under item 8 must be conducted by a professional engineer or by a person who possesses special, expert or professional knowledge or qualifications appropriate to assess any potential or actual hazards. This person may have a specific qualification, such as being a Certified Industrial Hygienist (CIH) or Registered Occupational Hygienist (ROH), when the following circumstances exist:

- A process uses or produces a substance that may result in the exposure of a worker in excess of any exposure limit set out in Regulation 833 of the Revised Regulations of Ontario, 1990 (Control of Exposure to Biological or Chemical Agents)

#### Flammable liquids

A PSR is required when flammable liquids are located or dispensed in a building, room or area.

There are no standards that may be used for an exemption. However, the following standards may be used by an engineer doing a PSR to determine compliance or measures to be taken to achieve compliance: NFC Part 4; NFPA-30; NFPA-68 and 69; NFPA-505; Factory Mutual Systems Industrial Loss Prevention.

#### Rack and stacking structures

When materials, articles or things are to be placed or stored on a structure that is a rack or stacking structure (item 3 in the section 7 table), a PSR is required unless the rack or stacking structure is designed and tested for use in accordance with current applicable standards.

For the purpose of section 7, "rack and stacking structures" include:

- industrial pallet racks
- moveable shelf racks
- stacker racks
- drive-in and drive-through racks, and
- cantilever racks.

They are made of cold-formed, hot-rolled steel, wood, aluminum or concrete structural members.

#### Exemption

An exemption from doing a PSR may be claimed if the rack or stacking structure has been manufactured to meet the following Racking Manufacturing Institute Standard:

Specification for the Design Testing and Utilization of Industrial Steel Storage Racks, Part 1, 2, 3.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Pre-Start Health and Safety Reviews**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **PRE-START HEALTH AND SAFETY REVIEWS**

This standard deals with detailed safety requirements for a particular piece of equipment such as racks and stacking structures. If no PSR is required, the owner or employer shall keep documents establishing the exemption readily accessible in the workplace for as long as the rack or stacking structure remains in the workplace.

#### **Codes and Standards**

If the rack or stacking structure was not manufactured to this standard, the standard may be used by the engineer doing the PSR to demonstrate that the rack is in compliance with the applicable clause of the Industrial Regulation (45(b)).

The codes and standards listed below cannot be used for exemption purposes but may be used by an engineer doing a PSR to determine compliance or measures to be taken to achieve compliance:

- Steel storage racking AS 4084-1993
- SEMA Code of Practice for the Design of Static Racking
- Pallet racks JIS Z 0620 - 1998

#### **Lifting devices**

A PSR is required when the construction, addition, installation or modification relates to a lifting device, travelling crane or automobile hoist. This does not include a forklift truck.

#### **Exemptions**

A PSR would not be required in the case of a lifting device or travelling crane, if it is in or on a supporting structure originally designed for it and its capacity does not exceed the capacity provided for in that original design

If no PSR is required due to the above exemption, the owner or employer must keep documentation supporting the exemption readily accessible in the workplace.

#### **Chemical processes**

A PSR is required when a process uses or produces a substance that may result in the exposure of a worker in excess of any occupational exposure limit set out in R.R.O. 1990, Regulation 833, O. Reg. 490/09, and O. Reg. 278/05 under the OHSA.

There are no standards that can be used for an exemption from a PSR. However, Regulation 833 Control of Exposure to Biological or Chemical Agents or O. Reg. 490/09 Designated Substance Regulation may be used to support compliance.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Inspections**

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REVISION # 1

# OF PAGES: 1

# **WORKPLACE INSPECTIONS**

## **PURPOSE**

Workplace inspections are vital to identify hazards and maintain safety standards. Inspection reports will be filed and all outstanding action items needing attention will be recorded, circulated and reviewed.

## **SCOPE**

### **Methods of Inspection**

1. Monthly Inspections – scheduled inspections conducted monthly by J.H.S.C. members in the shop and office building.
2. Daily Inspections – of all commercial trucks shall always be conducted and logged immediately prior to operation by the driver. This is to ensure that the truck is in safe operating order. Submit all copies of inspection sheets as required. This may include hard copies or digital copies. Ensure they are submitted at least weekly.

### **Remedial Action**

It may be necessary to take remedial action if substandard or hazardous conditions are found. Work may be stopped until all members of the inspection team agree with the suggested course of action. The condition(s) will be recorded on the inspection report.

### **Reporting**

The inspection reports shall be reviewed by Management/Supervisor.

### **Follow-Up**

Follow-up reporting on deficiencies must be carried out by the Supervisors, and / or J.H.S.C. members. All work done will be filed. All workers affected by the repair or action will be notified.

## **REQUIREMENTS**

### **Occupational Health and Safety Act**

Section 9, (23-29)



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hours and Conditions of Work

PREPARED BY: HEALTH AND SAFETY TEAM

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REVISION # 1

# OF PAGES: 2

# HOURS AND CONDITIONS OF WORK

## PURPOSE

These procedures are in place to ensure employees understand their general workday and if working alone, are monitored and able to summon assistance if needed.

## SCOPE

### Hours

At AAROC Equipment the workday is generally 10 hours/day. Exceptions may occur depending on the task or for field service work. A work contract may also exist in which case the hours will be discussed prior to the job starting.

### Meal Breaks

All employees are required to take a half-hour unpaid lunch-break indicated on their timesheet. Usually this occurs from 12:00 pm (noon) to 12:30 pm or after five (5) consecutive hours without a meal break. Rotations or delays are permissible only if approved by the supervisor.

### Working Alone

- Management should take every effort to avoid persons working alone. When it cannot be avoided, the following steps must be implemented before work begins:
- A worker assigned by a supervisor to work alone in a workplace shall be well trained, experienced and a competent person.
- Means of communication with the worker must be provided in the form of appropriate two-way radio contact and/or cell phone.
- A plan to check-in with the supervisor throughout the shift at regular intervals must be established.
- The use of a working alone monitoring app and vehicle GPS will be used. If at check-in, contact with the worker cannot be made, the site must be visited immediately if possible, by a supervisor or other workers. If no one is able to check immediately, then emergency services (911) may be called.
- The worker must communicate at the end of the shift that work has stopped.

### After Hours

In addition to the above procedures, the following should apply when working alone after hours:

The contact and check-in policy should be confirmed. It may involve different supervisors or different means of communication

A spouse or family member should know your work location and schedule. They should also have the supervisor's contact information

### Industrial Hygiene

- Where a worker is exposed to a potential hazard of injury to the eye due to contact with a biological or chemical substance, an eyewash fountain shall be provided.
- Where a worker is exposed to a potential hazard of injury to the skin due to contact with a substance, a quick-acting deluge shower shall be provided.
  - The emergency eyewash and deluge shower described above must:
    - a) be clearly marked with a sign or label;



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Hours and Conditions of Work**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

### **HOURS AND CONDITIONS OF WORK**

- b) be located or installed in a conspicuous place near where the hazardous biological or chemical agent is kept or used;
  - c) be readily accessible to workers; and
  - d) have instructions for its use displayed on the equipment or treatment or as near to it as is practical.
- An industrial establishment shall be adequately ventilated by either natural or mechanical means such that the atmosphere does not endanger the health and safety of workers.
- Replacement air shall be provided to replace air exhausted. The replacement air shall,
  - a) be heated, when necessary, to maintain at least the minimum temperature in the workplace;
  - b) be free from contamination with any hazardous dust, vapour, smoke, fume, mist or gas; and
  - c) enter in such a manner so as,
    - I. to prevent blowing of settled dust into the workplace,
    - II. to prevent interference with any exhaust system, and
    - III. not to cause undue drafts.
- The discharge of air from any exhaust system shall be in such a manner so as to prevent the return of contaminants to any workplace.
- An enclosed workplace shall be at a temperature,
  - a) suitable for the type of work performed; and
  - b) not less than 18° Celsius.
- No food, drink or tobacco shall be taken into, left or consumed in any room, area or place where any substance that is poisonous by ingestion is exposed.
- Where workers are exposed to a substance that,
  - a) is poisonous by ingestion; and
  - b) can contaminate the skin,
- shower rooms and individual lockers for street and work clothes shall be provided.
- A place suitable for eating purposes shall be provided where,
  - a) thirty-five or more workers are employed; or
  - b) there is any room, area or place in which there is exposure to a substance that is poisonous by ingestion.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fall Protection

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REVISION # 1

# OF PAGES: 4

# FALL PROTECTION

## PURPOSE

The purpose of this section is to establish the minimum requirements and guidelines to be used to protect employees from falls when they are working at elevated positions or are exposed to potential fall hazards.

## SCOPE

This procedure is applicable to all employees, and any subcontractor(s) employed by AE.

This procedure provides the minimum requirements to be implemented by all employees and subcontractors. Where a Client's requirements are less stringent than those in this procedure, the requirements of this procedure shall still be implemented. Where a Client's requirements are more stringent than those in this procedure, the Client requirements shall be adhered to.

## Background

Working from heights is a high-risk activity. Risks can be associated with the use of ladders, personnel lifts, or working on elevated walkways. Proactive protective measures must be taken prior to working at elevated heights.

To achieve 100% fall protection, either primary or secondary fall protection systems are used. In some instances, a combination of both may be required.

## Legislation

According to Ontario Regulation 851, Industrial Establishments:

### Fall Hazards: Section 85

Where a worker is exposed to the hazard of falling and the surface to which he or she might fall is more than three metres below the position where he or she is situated,

- a) the worker shall wear a serviceable safety belt or harness and lifeline that is adequately secured to a fixed support and so arranged that the worker cannot fall freely for a vertical distance of more than 1.5 metres; and
- b) the fall arrest system described in clause (a) shall,
  - (i) have sufficient capacity to absorb twice the energy and twice the load that under the circumstances of its use may be transmitted to it, and
  - (ii) be equipped with a shock absorber or other devices to limit the maximum arresting force to 8.0 kilonewtons to the worker.

### Fall Hazards: Section 86

Where a worker is exposed to the hazard of falling into liquid that is of sufficient depth for a life jacket to be effective as protection from the risk of drowning, there shall be an alarm system and rescue equipment, appropriate in the circumstances, to ensure the worker's rescue from the liquid and,

- (a) the worker shall wear a life jacket; or
- (b) the employer shall develop written measures and procedures to prevent the worker from drowning and shall implement them.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fall Protection

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

## FALL PROTECTION

### Guardrails: Section 13-15

13.

(1) Subject to subsection (2), there shall be a guardrail,

- (a) around the perimeter of an uncovered opening in a floor, roof or other surface to which A worker has access;
- (b) at an open side of,
  - i. a raised floor, mezzanine, balcony, gallery, landing, platform, walkway, stile, ramp or other surface, or
  - ii. a vat, bin or tank, the top of which is less than 107 centimetres above the surrounding floor, ground, platform or other surface; and
- (c) around a machine, electrical installation, place or thing that is likely to endanger the safety of any worker.

(2) Subsection (1) does not apply to,

- (a) a loading dock;
- (b) a roof to which access is required only for maintenance purposes; and
- (c) a pit used for,
  - i. work on an assembly line, or
  - ii. maintenance of vehicles or similar equipment.

14.

(1) A guardrail shall,

- (a) have a top rail located not less than 91 and not more than 107 centimetres above the surface to be guarded;
- (b) have a mid rail;
- (c) if tools or other objects may fall on a worker, have a toe-board that extends from the surface to be guarded to a height of at least 125 millimetres; and
- (d) be free of splinters and protruding nails.

(2) A guardrail shall be constructed to meet the structural requirements for guards as set out in the Building Code.

15. A cover on an opening in a floor, roof or other surface shall be,

- (a) secured in place; and
- (b) constructed to meet the structural requirements for loads due to the use of floors and roofs as set out in the Building Code.

18. (1) Subject to subsection (2), an access ladder fixed in position shall,

- (a) be vertical;
- (b) have rest platforms at not more than nine metre intervals;
- (c) be offset at each rest platform;
- (d) where the ladder extends over five metres, above grade, floor or landing, have a safety cage commencing not more than 2.2 metres above grade, floor or landing and continuing at least ninety centimetres above the top landing with openings to permit access by a worker to rest platforms or to the top landing;
- (e) have side rails that extend ninety centimetres above the landing; and
- (f) have rungs which are at least fifteen centimetres from the wall and spaced at regular intervals.

(2) Subsection (1) does not apply to an access ladder on a tower, water tank, chimney or similar structure which has a safety device which will provide protection should a worker using the ladder fall.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Fall Protection**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

# **FALL PROTECTION**

19. Where frequent access is required to equipment elevated above or located below floor level, permanent platforms shall be provided with access by a fixed,

- (a) stair; or
- (b) access ladder.

20. Barriers, warning signs or other safeguards for the protection of all workers in an area shall be used where vehicle or pedestrian traffic may endanger the safety of any worker.

73. A portable ladder shall,

- (a) be free from broken or loose members or other faults;
- (b) have non-slip feet;
- (c) be placed on a firm footing;
- (d) where it,
  - i. exceeds six metres in length and is not securely fastened, or
  - ii. is likely to be endangered by traffic,
  - iii. be held in place by one or more workers while being used; and
- (e) when not securely fastened, be inclined so that the horizontal distance from the top support to the foot of the ladder is not less than 1/4 and not more than 1/3 of the length of the ladder.

### **Primary Fall Prevention Systems**

Primary fall prevention systems are the preferred choice for performing work in elevated areas. These systems provide walking and working surfaces that are equipped with standard guardrail systems on all open sides. In most cases, primary fall prevention systems are sufficient fall prevention methods and do not require the use of additional (secondary) fall protection systems such as a harness / lanyard system.

#### **Guardrails**

Guardrails are an integral part of most primary fall prevention systems and must be constructed according to the specifications noted in the Regulations.

### **Secondary Fall Protection Systems**

Secondary fall protection systems should only be used after all efforts to use primary fall prevention systems have been exhausted or when being used together with primary systems. The following minimum standards shall be met:

- Full body harnesses are the only type of harness allowed in a fall arrest system.
- A full body harness and shock-absorbing lanyard must be used when working outside guarded platforms more than 3 m (10 ft) above ground level.
- The use of a second shock-absorbing lanyard may be used to achieve continuous tie-off.
- Fall protection devices (safety harnesses, lanyards, etc.) shall be inspected for damage prior to each use.

Defective equipment shall be immediately removed from service, tagged and returned to your Supervisor.

- The lanyard shall be attached to the harness connection point (ie. D-ring).
- The full body safety harness/lanyard must be attached to a secure anchor point





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Fall Protection**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **FALL PROTECTION**

- Snaphooks attached to shock absorbing lanyards shall be of the double action/locking type design. Simple spring resistant snaphooks shall not be used for fall protection
- Fall protection devices and systems shall not be used for any other purpose other than employee safeguarding.
- Workers in elevated work platforms or personnel lifting devices shall wear full body harnesses and secure their lanyards according to manufacturer instructions.
- In situations where a fall could result in impalement or other injury (i.e. working over a hot process, operating equipment, etc.) fall protection equipment shall be utilized regardless of the potential falling distance.
- Fall protection devices subjected to shock loading imposed during fall arresting shall be removed from service and tagged.
- Fall protection devices shall be inspected on an annual basis by a qualified external inspection agency as required.
- All workers using fall protection devices must complete training specific to the equipment used including procedures on the use, care, inspection and maintenance of the fall protection devices or systems.

#### **Anchor Points**

The strength of a personnel fall arrest system is based on being attached to an anchor system that does not reduce the strength of the system. Anchor points must be sufficient to resist the arrest force of a fall.

#### **Lifeline Systems**

Lifeline systems are points of attachment for fall protection lanyards and harnesses. Lifelines may be mounted either vertically or horizontally and provide fall protection for personnel working in elevated areas.

- Lifelines shall not be used for any other purpose than fall protection
- Lifelines shall be protected against being cut or abraded (ie. Softeners around lifelines at anchor point)
- Lifelines must be designed, installed, maintained and removed by persons competent and trained in lifeline installations

### **REQUIREMENTS**

#### **Training:**

All workers using fall protection devices must complete training specific to the equipment used including procedures on the use, care, inspection and maintenance of the fall protection devices or systems.

Training must be conducted by a competent person or organization.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Machine Guarding

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# MACHINE GUARDING

## PURPOSE

Moving machine parts have the potential to cause severe injuries such as crushed fingers or hands, amputations, burns, or blindness. Machine guarding measures are essential to protect workers from coming into contact with hazards.

## SCOPE

### Injuries

Every year, thousands of workers are injured because of machine-related incidents. This alarming statistic accounts for many lost time injuries in Ontario. Ministry of Labour orders written under the Industrial Regulation are often related to inadequate guarding and lockout.

There are many types of potentially hazardous energy at any time including electrical, thermal, chemical, pneumatic, hydraulic, mechanical and gravitational. These forms of energy must be locked out, blocked or released to ensure that machinery or equipment does not turn on or move during installation, repair or maintenance.

### Rotational motion hazards:

pulley, drill, circular saw, rollers, grinding wheel, lathe, shaft, router, milling, boring machine, gear and chain, nip points

### Reciprocating motion hazards:

press, jig saw, drill press, cutters, shears, punch action of press

### Transverse motion hazards:

conveyor belt, band saw, belt sander, lift truck



Motion	Action	Type of Injury
Rotating	Cutting/Trapping	Laceration/Amputation/Suffocation
Back and Forth, Up/Down	Impact/Struck by/Crushing	Fracture/Amputation/Death
Straight Line	Entanglement/Pulled by	Sprain/Fracture/Amputation/Death

## Industrial Regulation Legislation

The Regulations have the following specific provisions:

- Preventing Access to Exposed Part: guards must protect person from moving part. (s.24)
- In-running Nip Hazard: guards must protect person from access to pinch points. (s.25)
- Waste Stock and Protection: guards must protect person from processed materials, production or waste stock not just the moving machinery/equipment parts. (s.26)
- Emergency Stop on Machine: must be easy to see and reach. (s.27)
- Operating Control for Machine: control that acts as a guard must be in safe zone for operator, cannot be operated accidentally, and must not be made ineffective, e.g., tied down. (s.28)



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Machine Guarding

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### MACHINE GUARDING

- Start Up Warning Devices: all parts of conveyor or other machinery not visible from control area must give a warning before it starts passing over workers (s.33)
- Conveyors: provision of guards. (s.34)
- Lockout: lockout requirements (s.42, 42.1)
- Stopping and Blocking Machine: the machine must be motionless and moving parts blocked before any cleaning, oiling, adjusting, repairing or maintaining work is done on any part of the machine. (s.75)
- Starting a Machine: controls and other control mechanisms must be locked out as well as other precautions (e.g., blanking off, energy release) where starting the machine or equipment may endanger the worker. (s.76)

#### Where are the safety hazards?

To complete a safety hazard review, start by checking all machinery to see whether there are moving parts that could come into contact with the operator:

1. Check manufacturer's information for guidance on appropriate machine guarding
2. Ensure that guards are not removed. Check:
  - a. At the controls: starting or stopping, set-up, adjusting
  - b. Where you feed materials into the machine: loading, cleaning
  - c. Where the machine cuts, turns, drills, punches, or moves in any way
  - d. At the gears, wheels, cylinders, belts, rollers, chains, cables, sprockets, cams
  - e. Around any machinery and equipment that can release energy (e.g., hydraulic systems).

#### Types of Machines at AE's Shop

Lathe  
Hydraulic press  
Chop saw  
Band saw  
Drill press  
Pedestal grinder  
Iron worker

#### Controls

There are several means for controlling machine hazards:

- Safety Guards and Devices
- Safety Procedures and Practices
- Personal Protective Equipment

#### Safety Guards and Devices

Guards and safety devices can help protect you from dangerous contact. Guards, barriers, and safety devices must prevent your fingers, arms – or your whole body – from getting into a danger zone.

- Guards must be designed and placed correctly: right size opening and distance to person
- Guards must work well and fit the machine properly – always



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Machine Guarding**

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# **MACHINE GUARDING**

## **Safety Procedures and Practices**

These include proper lockout/tagout procedures before service, maintenance, or repair jobs on machines. Standard operating procedures to check, set up machines, start and finish the job are also included.

### **Personal Protective Equipment**

Use the right protective equipment and clothing for the job. Practice proper hygiene practices. Do not use damaged or dirty PPE or PPE that fits poorly.

## **Inspection and Maintenance**

Conduct an inspection of the machinery and guards prior to each use and also inspect the entire workplace at least monthly. Include:

- Broken or missing guards and devices
- Loose parts, unusual noise, leaks, or vibration
- Unfamiliar odours, heat, smoke, dust, fumes, vapours
- Messy work area and floor
- Inadequate lighting

**Do not operate, service, maintain, or repair a machine unless trained and authorized to do so.**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Electrical Safety

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REVISION # 1

# OF PAGES: 2

# ELECTRICAL SAFETY

## PURPOSE

To give all workers an understanding of the hazards involved with electrical equipment.

## SCOPE

### Injuries

An electrical hazard is a dangerous condition where a worker can or does make electrical contact with energized equipment or a conductor. From that contact, the person may sustain an injury from shock, and there is a potential for the worker to receive an arc flash (electrical explosion) burn, thermal burn or blast injury.

Factors that affect the presence of electrical injury and its severity depend on:

- the magnitude of the electric current
- its transmission (direct or indirect)
- body entry and exit sites
- the path the current takes through the body
- the surrounding environmental conditions (e.g. wet or dry environments)

### Exposure to electricity can result in a range of injuries:

- cardiovascular system injuries (e.g. rhythm disturbances)
- burns
- nervous system disruption and respiratory arrest
- head injuries, and fractures and dislocations (caused by being “thrown” or “knocked down”) from the severe muscle contractions caused by the current.

According to the Ministry of Labour, thirty thousand (30,000) electrical shock incidents occur every year. Nearly half of these incidents involved people working on electrical equipment while it was energized.

According to the Electrical Safety Authority, the most common cause of occupational electrocution is using an improper procedure (60%).

### What the law says

Employers need to develop and implement a written health and safety program that supports the control of electrical hazards in the workplace and follow the regulations that apply to electrical hazards in the workplace.

### Common Hazards

The most common type of work to result in an electrocution is routine work involving repair and maintenance. The following are types of electrical hazards common to the work done by AE:

- repair/ maintenance of energized electrical systems on equipment
- working in close proximity to energized electrical installations (panels, conductors)
- using electric tools, cords, generators
- repairing or using equipment in proximity to overhead power lines

### Hazard Control

To control the hazard, ensure proper procedures are followed for each task. There may be different procedures required.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Electrical Safety**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

### **ELECTRICAL SAFETY**

- repair/ maintenance of energized electrical systems on equipment
  - Use Lockout Tagout procedures. See Section 22 in this Program
- working on energized electrical installations (panels)
  - Only qualified electricians can repair or install electrical panels or work on live electrical systems
- using electric tools, cords, generators
  - Ensure all tools are inspected before use and in good order. See Section 27 in this Program
- repairing or using equipment in proximity to overhead power lines
  - Follow all electrical safety procedures found in the Regulations (ie. Construction Reg. 213, Section 188)

Typically for maintenance and repair of equipment, lockout procedures must be followed.

#### **REQUIREMENTS**

- All workers must understand and follow the proper procedures when working around electrical equipment and the requirement to lockout and tagout.

#### **Legislation:**

- Industrial Regulations 851, Sections 40-43
- Construction Regulations, Section 188
- Mining Regulations, Sections 155-159,



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Fire Protection and Prevention**

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REVISION # 1

# OF PAGES: 4

# **FIRE PROTECTION AND PREVENTION**

## **PURPOSE**

The safety of all employees, visitors and the public are essential components of the Fire Safety Plan at 3003 Page St. The Fire Safety Plan ensures timely and appropriate responses to emergencies and compliance with applicable legislation.

The Ontario Fire Code requires the establishment and implementation of a Fire Safety Plan for the shop and office building at 3003 Page St. The implementation of a Fire Safety Plan helps to assure effective utilization of life safety features in a building, to protect people from fire.

## **SCOPE**

### **Fire Safety Plan**

The Fire Safety Plan has been completed and is available in 2 binders each located at:

- main office front desk reception
- shop reception desk.

It is also available in digital format.

All employees who work at the main office and shop will be provided information from the Fire Safety Plan to ensure their safety.

The shop safety board also has important fire safety information posted for employees to use if needed.

### **Fire Prevention and Protection**

The building is equipped with fire prevention and protection devices including:

- fire extinguisher's
- emergency lights
- fire alarm pull station's / bells
- fire hose cabinet's
- heat and smoke detectors
- limited sprinkling in the shop weld bay

The heat and smoke detectors, pull stations and emergency water devices (sprinklers, hoses) are monitored by a third-party 24 hours/day, 7 days a week. If an alarm signal is received, they will dispatch emergency services as required.

### **Fire Extinguishers**

The regulations state that every worker who may be required to use a fire extinguisher must be trained in its use. Fire extinguishers in the shop and building must be:

- readily accessible in marked locations
- inspected regularly
- promptly refilled after use



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Fire Protection and Prevention**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **FIRE PROTECTION AND PREVENTION**

Extinguishers will be located at numerous marked locations throughout the shop and building including:

- o in all fire hose cabinets
- o at exterior exit doors
- o on all forklifts
- o in critical areas including the weld bay, electrical room, service pit, oil tote storage area, wash bay

Fire extinguishers are classified according to their capacity to fight specific kinds of fire:

Class A – for fires in ordinary combustible materials such as wood and paper where you need a quenching, cooling effect.

Class B – for flammable liquid and gas fires such as oil, gasoline, paint, and grease where you need oxygen exclusion or flame interruption.

Class C – for fires involving electrical wiring and equipment where you need a non-conductive extinguishing agent.

Class D – for fires in combustible metals such as sodium, magnesium, and potassium.

For most operations, a 4A40BC extinguisher is required.

When using an extinguisher remember...

P - Pull the pin

A - Aim the nozzle low at base of fire

S - Squeeze the handle

S – Sweep back and forth at base of fire

Once you've discharged an extinguisher, report it immediately to your supervisor.

#### **Inspections**

Fire extinguishers are currently inspected at least monthly by a 3rd party technician.

Annual maintenance inspections are currently completed by a 3rd party technician.

However, if you need to inspect an extinguisher, check that:

- it is well supported, all hangers are fastened solidly;
- it is properly charged (read pressure gauge);
- the hose discharge opening is clear;
- the ring pin is attached properly;
- the inspection tag is attached and current and
- there are no apparent defects

#### **Flammable Liquids (Regulations):**

22.

(1) Subject to subsections (2), (3) and (4), where not required for immediate use, flammable liquids shall be,







HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Protection and Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### FIRE PROTECTION AND PREVENTION

- 1) in sealed containers; and
  - 2) located,
    - a) outdoors and remote from any means of egress,
    - b) in a building not used for any other purpose, or
    - c) in a room,
      - i) separated from the rest of the building with partitions having,
  1. at least a one-hour fire-resistance rating, and
  2. self-closing doors, hinged to swing outwardly on their vertical axes,
    - A. equipped with,
      1. a drain connected to a dry sump or holding tank, and
      2. liquid-tight seals between interior walls and floor and a liquid-tight ramped sill at any door opening, which is not in an exterior wall, and
    - B. having natural ventilation to the outdoors by upper and lower exterior wall gravity louvres.
- (2)
- Where not required for immediate use, flammable liquids,
- (a) in opened containers; or
  - (b) having a flash point below 22.8° Celsius and a boiling point below 37.8° Celsius, shall,
  - (c) comply with the requirements of clause (1) (b);
  - (d) be stored in facilities having no potential source of ignition; and
  - (e) when located in a room, be located in a room equipped with,
    - (i) explosion venting to the outdoors, and
    - (ii) a spark resistant floor.
- (3)
- A maximum of 235 litres of flammable liquids may be stored,
- (a) in sealed containers of not more than twenty-three litre capacity each; or
  - (b) in a metal cabinet of double walled construction with a 3-point door latch and a liquid-tight door sill raised at least fifty millimetres above the floor.
- (4)
- An area where flammable liquids are dispensed shall have,
- (a) mechanical ventilation from floor level to the outdoors at the rate of eighteen cubic metres per hour per square metre of floor area; and
  - (b) containers and dispensing equipment bonded and grounded when flammable liquid is dispensed.
- 23.
- A portable container used for dispensing flammable liquid in a work area shall be made of material suitable to provide for the safety of all workers and have,
- (a) a spring-loaded cap; and
  - (b) a flame arrestor.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Fire Protection and Prevention**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **FIRE PROTECTION AND PREVENTION**

Gasoline engines on mobile or portable equipment shall be refueled,

- (a) outdoors;
- (b) with the engine on the equipment stopped;
- (c) with no source of ignition, within three metres of the dispensing point; and
- (d) with an allowance made for expansion of the fuel should the equipment be exposed to a higher ambient temperature.

#### **REQUIREMENTS**

- Every worker at 3003 Page must be familiar with the Fire Safety Plan. Every worker who may be required to use a fire extinguisher will be trained in its use.

#### **Legislation:**

- Industrial Regulations 851, Sections 22-23
- Fire Protection and Prevention Act
- Ontario Fire Code



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

# HOT WORK

## PURPOSE

The purpose of this policy is to establish hot work safety procedures and to ensure that all hot work operations are performed in the safest manner possible, and in compliance with applicable regulations.

## DEFINITIONS

### Hot Work defined:

Any work performed that produces an increased risk of fire or explosion from the generation of sparks, flame, ignitable dust or vapour or other sources of ignition and includes welding, flame cutting, soldering, brazing, grinding or other similar work.

Most hot work is performed by staff at the AE maintenance shop in designated welding areas, however some field work may be also be conducted by AE field service.

Hot Work permits may be required in certain locations by Owners and/or Clients.

## SCOPE

- General good practices before performing hot work include:
- Making sure that all equipment is in good operating order before work starts.
- Inspecting the work area thoroughly before starting. Look for combustible materials in vicinity of job area.
- Clearing any combustible materials around the work zone.
- Using water ONLY if electrical circuits have been de-energized to prevent electrical shock.
- If combustibles cannot be moved, cover them with shields. Protect gas lines and equipment from falling sparks, hot materials and objects.
- Securing, isolating, and venting pressurized vessels, piping and equipment as needed before beginning hot work.
- Posting a fire watch within the work area, including during breaks, for at least 30 minutes after work has stopped. Depending on the work done, the area may need to be monitored for longer after the end of the hot work.
- Shut down any process that produces combustible atmospheres.

## Personal Protective Equipment

### Eye and Face Protection

Welding helmets or face shields provide radiation, thermal, electrical, and impact protection for face, neck, forehead, ears, and eyes.

The filtered or shaded plate is the radiation barrier. It is necessary to use a filter plate of the proper lens shade to act as a barrier to the harmful light rays and to reduce them to a safe intensity.

Always ensure that the correct lens shade is selected for the type of welding being conducted.

When gas cutting, use a face shield or goggles and ensure that the proper lens shade is used.

If unsure of the type of lens shade required, ask your supervisor.

When grinding, use safety glasses and a face shield to protect from flying particles.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

## HOT WORK

### Clothing

Clothing should be made of non-synthetic materials such as wool. Woolen clothing is preferable to cotton because it is less likely to ignite. Keep sleeves rolled down and collars buttoned up. Wear shirts with flaps over pockets and pants with no cuffs. Remove rings, watches, and other jewelry. Never carry matches or lighters in pockets. Clothing should be free from oil and grease.

Wear flame-proof gauntlet gloves and an apron or leggings. Wear high-cut safety footwear laced to the top to keep out sparks and slag.

### Hearing Protection

Ear plugs or ear muffs must be used when welding, cutting or grinding.

### Respiratory protection

Fume and exhaust extractors are available in the shop. Protection will not be required for most outdoor welding operations if adequate ventilation is available. However, when ventilation is not adequate, respiratory protection must be worn. Typically, a half-mask respirator with cartridges suitable for welding fume should be used. Consult with your supervisor before work begins to select the proper type.

### Welding and Cutting Hazards

Welders are exposed to a wide range of hazards such as radiation, inhalation of toxic fumes and gases, serious burns from hot metal, and electric shocks from welding cable.

There are generally 2 groups: Physical and Chemical Hazards

### Physical Hazards

Non-ionizing radiation

A major source is ultraviolet, infrared, and visible light radiation from welding. Radiation produced by the welding process is mainly non-ionizing.

### UV

Exposure to ultraviolet (UV) radiation can result directly from the arc or from a reflection off bright objects such as shiny metal or white clothing. It can cause "arc eye" when sight is not adequately protected.

### Symptoms of "Arc Eye"

Certain types of UV radiation can produce an injury to the surface and mucous membrane of the eye called "arc eye". The symptoms include:

- pain - ranging from a mild feeling of pressure in the eyes to intense pain in severe instances
- tearing and reddening of the eye and membranes around the eye
- sensation of "sand in the eye" or abnormal sensitivity to light
- inability to look at light sources (photophobia)

Eyes become watery and painful anywhere from 2 to 24 hours after exposure. The condition may last 1–5 days but is usually reversible with no lasting effects. However, repeated exposure may result in scar tissue that can impair



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

### HOT WORK

vision. UV exposure may also cause a temporary loss of visual sharpness called “fluorescence.” It may eventually lead to the development of cataracts in the eye if eye protection is not worn.

Skin reddening, commonly known as sunburn, is another hazard of UV exposure. Blistering may occur in extreme cases.

The intensity of UV radiation varies with the type of welding. Generally, the higher the temperature of the welding process the higher the UV radiation.

#### Infrared

Infrared radiation is hazardous for its thermal or heating effects. Excessive exposure to the eye may cause damage.

#### Visible light

Light is released at high intensity by welding. Short-term exposure can produce “flash blindness” in which vision is affected by after-images and temporary blind spots. Repeated exposure to high-intensity visible light can produce chronic conjunctivitis, characterized by red, tearful eyes.

#### Noise

Sound waves over 85 dBA emitted at high intensity by welding equipment can lead to hearing loss. Noise has also been linked to headaches, stress, increased blood pressure, nervousness, and excitability. Welding noise is produced by the power source, the welding process, and by secondary activities such as grinding and hammering. Ear plugs or ear muffs must be worn when welding, cutting or grinding.

#### Electric Shock

Electrical shock is the effect produced by current on the nervous system as it passes through the body. Electrical shock may cause violent muscular contractions, leading to falls and injuries. It may also have fatal effects on the heart and lungs. Electrical shock may occur as a result of improper grounding and/or contact with current through damp clothing or wet surfaces. Even if the shock itself is not fatal, the jolt may still cause welders to fall from their work positions.

Electrical burns are an additional hazard. The burns often occur below the skin surface and can damage muscle and nerve tissue. In severe cases, the results can be fatal. The extent of injury due to electrical shock depends on voltage and the body’s resistance to the current passing through it. Even low voltages used in arc welding can be dangerous under damp or humid conditions.

Welders should keep clothing, gloves, and boots dry and stay well insulated from work surfaces, the electrode, the electrode holder, and grounded surfaces.

#### Chemical Hazards

Chlorinated solvents for degreasing, zinc chromate-based paint for anti-corrosion coatings, cadmium or chromium dusts from grinding, and welding fumes are all classified as chemical hazards.

Arc welders are at particular risk since the high temperatures generated by the arc can release heavy concentrations of airborne contaminants.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Hot Work**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

### **HOT WORK**

Chemical hazards may injure welders through inhalation, skin absorption, ingestion, or injection into the body. Damage to respiratory, digestive, nervous, and reproductive systems may result.

Symptoms of overexposure to chemicals may include nosebleeds, headaches, nausea, fainting, and dizziness. The most common chemical hazards from welding are airborne contaminants:  
Fumes, Gases and Vapours and Dusts

#### **Fumes**

Some of the metal melted at high temperatures during welding vaporizes. The metal vapour then oxidizes to form a metal oxide. When this vapour cools, suspended solid particles called fume particles are produced.

Welding fumes consist primarily of suspended metal particles invisible to the naked eye. Metal fumes are the most common and the most serious health hazard to welders. Fume particles may reach deep into the lungs and cause damage to lung tissue or enter the bloodstream and travel to other parts of the body.

The following are some common welding fumes:

- Beryllium- is a hardening agent found in copper, magnesium, and aluminum alloys. Overexposure may cause metal fume fever. Lasting for 18–24 hours, the symptoms include fever, chills, coughing, dryness of mouth and throat, muscular pains, weakness, fatigue, nausea, vomiting, and headaches. Chronic exposure to beryllium fumes can result in respiratory disease. Symptoms may include coughing and shortness of breath. Beryllium is a suspected carcinogen.
- Cadmium coatings- can produce a high concentration of cadmium oxide fumes during welding. Cadmium-plated or cadmium-containing parts resemble, and are often mistaken for, galvanized metal. Overexposure to cadmium can cause metal fume fever. Symptoms include respiratory irritation, a sore, dry throat, and a metallic taste followed by cough, chest pain, and difficulty in breathing. Overexposure may also make fluid accumulate in the lungs and may cause death.
- Chromium- is found in many steel alloys. Known to be a skin sensitizer, it may cause skin rashes and skin ulcers with repeated exposure. Chromium also irritates mucous membranes in areas such as eyes and nose. Inhaled chromium may cause edema and bronchitis.
- Lead- can be found in lead-based paints and some metal alloys. Lead poisoning results from inhalation of lead fumes from these lead-based materials. The welding and cutting of lead or lead-coated materials is the primary source of lead poisoning for welders. Symptoms include loss of appetite, anemia, abdominal pains, and kidney and nerve damage.
- Nickel- is found in many steel alloys including stainless steel and monel. It is a sensitizing agent and in certain forms is toxic and carcinogenic. Nickel fumes can also produce cyanosis, delirium, and death 4 to 11 days after exposure.
- Zinc- is found in aluminum and magnesium alloys, brass, corrosion-resistant coatings such as galvanized metal, and brazing alloys. Inhaling zinc fumes during the cutting or welding of these metals may cause metal fume fever.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

## HOT WORK

### Gases and Vapours

A gas is a low-density chemical compound that normally fills the space in which it is released. It has no physical shape or form. Vapour is a gas produced by evaporation. Several hazardous vapours and gases may be produced by welding.

Hydrogen fluoride (HF) gas- can be released by the decomposition of rod coatings during welding and irritates the eyes and respiratory system. Overexposure can injure lungs, kidney, liver, and bones.

Nitrogen oxide (NOx) gas- is released through a reaction of nitrogen and oxygen promoted by high heat and/or UV radiation. It is severely irritating to the mucous membranes and the eyes. High concentrations may produce coughing and chest pain. Accumulation of fluid in the lungs can occur several hours after exposure and may be fatal.

Ozone gas- is formed by the reaction of oxygen in air with the ultraviolet radiation from the welding arc. It may be a problem during gas-shielded metal arc welding in confined areas with poor ventilation. Overexposure can result in an accumulation of fluid in the lungs (pulmonary edema) which may be fatal.

Phosgene gas- is formed by the heating of chlorinated hydrocarbon degreasing agents. It is a severe lung irritant and overexposure may cause excess fluid in the lungs. Death may result from cardiac or respiratory arrest.

Phosphine or hydrogen phosphide- is produced when steel with a phosphate rustproofing coating is welded. High concentrations irritate eyes, nose, and skin.

Asphyxiants are chemicals that interfere with the body's ability to transfer oxygen to the tissues. The exposed individual suffocates because the bloodstream cannot supply enough oxygen for life.

There are two main classes of asphyxiants:

**Simple asphyxiants-** displace oxygen in air, thereby leaving little or none for breathing. In welding, simple asphyxiants include commonly used fuel and shielding gases such as acetylene, hydrogen, propane, argon, helium, and carbon dioxide. When the normal oxygen level of 21% drops to 16%, breathing as well as other problems begin, such as lightheadedness, buzzing in the ears, and rapid heartbeat.

**Chemical asphyxiants-** interfere with the body's ability to transport or use oxygen. Chemical asphyxiants can be produced by the flame cutting of metal surfaces coated, for instance, with rust inhibitors. Hydrogen cyanide, hydrogen sulphide, and carbon monoxide are examples of chemical asphyxiants—all highly toxic.

### Dusts

Dusts are fine particles of a solid that can remain suspended in air and are less than 10 micrometres in size. This means they can reach the lungs. Dusts may be produced by fluxes and rod coatings, which release phosphates, silicates, and silica. The most hazardous of these is silica which can produce silicosis.

### Fires and Explosions

There is always a threat of fire with welding. Fires may result from chemicals reacting with one another to form explosive or flammable mixtures.

In welding, oxygen and acetylene present the most common hazards of fire and explosion. Pure oxygen will not burn or explode but supports the combustion of other materials, causing them to burn much more rapidly than they would in air.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Hot Work**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

## **HOT WORK**

When exposed to high temperature, excess pressure, or mechanical shock, acetylene gas can undergo an explosive decomposition reaction.

### **Preventive Measures**

Welding hazards must be recognized, evaluated, and controlled to prevent injury to personnel and damage to property.

Types and effects of airborne contaminants produced by welding depend on the working environment, the kind of welding being done, the material being welded, and the welder's posture and welding technique.

Base metal- is an important factor in the production of fumes, vapours, and gases. The base metal will vaporize and contribute to the fume.

Coatings- such as rust inhibitors have been known to cause increased fume levels which may contain toxic metals. All paints and coatings should be removed from areas to be welded as they can contribute to the amount and toxicity of the welding fume.

Welding rod- is responsible for up to 95% of the fume. Rods with the fewest toxic substances can't always be used because the chemistry of the rod must closely match that of the base metal.

Shielding gas- used can affect the contaminants produced. Using a mixture of argon and carbon dioxide instead of straight carbon dioxide has been found to reduce fume generation by up to 25%.

Welding process variables- can have a big effect on the fume levels produced. Generally, fume concentrations increase with higher current, larger rods, and longer arc length. Arc length should be kept as short as possible while still producing good welds.

### **Ergonomics**

Here are some tips for a good working posture while welding:

- Learn to recognize symptoms of work-related musculoskeletal disorders. Repeated uncomfortable postures and tasks can cause injury.
- Avoid awkward body positions which cause fatigue, reduce concentration and lead to poor welds which may need to be repeated.
- Always use your hand to lower your helmet. Do not use a "jerking" motion of your neck and head.
- Position yourself in a stable, comfortable posture.
- Avoid working in one position for long periods of time.
- Always store materials and tools within normal reach.

### **Ventilation**

Ventilation is required for all welding and cutting. Adequate ventilation is defined as:

- the use of air movement to reduce concentrations of airborne contaminants below the acceptable limits in the worker's breathing zone and the work area
- prevent the accumulation of combustible gases and vapours
- prevent oxygen-deficient or oxygen-enriched atmospheres.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hot Work

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

## HOT WORK

Natural dilution ventilation — When using natural dilution ventilation, you must make sure to “keep your head out of the fume”. A portable fan can also be used if necessary to keep fumes out of your work area.

### Fire Prevention

Sparks and slag from welding, cutting and grinding can travel great distances and may contact flammable materials or electrical equipment. Fires have started in smoldering materials that went undetected for several hours after work was done. Take the following steps to prevent fires and explosions:

- Keep welding area free of flammable and explosive material
- Provide fire extinguishers suitable for potential types of fire. Know where the extinguishers are and how to use them
- Provide a firewatch where necessary—a worker to watch for fires for at least thirty minutes afterward

### Handling, Storing and Using Cylinders

#### Handling

- Do not accept or use any compressed gas cylinder which does not have proper identification of its contents
- Transport cylinders securely
- Protect cylinders and any related piping and fittings against damage
- Never drop cylinders or let them strike each other violently
- Chalk EMPTY or MT on cylinders that are empty
- Close valves and replace protective caps
- Secure transported cylinders to prevent movement or upset
- Always regard cylinders as full and handle accordingly

#### Storage

- Store cylinders upright in a safe, dry, well-ventilated location
- Never store flammable and combustible materials such as oil and gasoline in the same area
- Do not store cylinders near walkways, exits, or in places where they may be damaged or knocked over
- Do not store oxygen cylinders within 6 m (20 ft) of cylinders containing flammable gases unless they are separated by a partition at least 1.5 m (5 ft) high
- Store empty and full cylinders separately
- Prohibit smoking in the storage area

#### Using

- Open cylinder valves slowly. Only use the handwheel, spindle key, or special wrench provided by the supplier
- Always use a pressure-reducing regulator with compressed gases
- Before connecting a regulator to a cylinder, crack the cylinder valve slightly to remove any debris or dust that may be lodged in the opening
- Never allow sparks, molten metal, electric current, or excessive heat to come in contact with cylinders
- Never use oil or grease as a lubricant on the valves or attachments of oxygen cylinders
- Release pressure from the regulator before removing it from the cylinder valve
- When gas runs out, extinguish the flame and connect the hose to the new cylinder
- Purge the line before re-igniting the torch



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Hot Work**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

### **HOT WORK**

- When work is finished, purge regulators, then turn them off. Use a proper handle or wrench to turn off cylinders.

Hoses and hose connections for oxygen and acetylene should be different colours. Red is generally used to identify the fuel gas and green the oxygen. Protect hoses from traffic, flying sparks, slag, and other damage. Avoid kinks and tangles. Repair leaks properly and immediately.

### **REQUIREMENTS**

- Industrial Regulations 851, Section 49, 127-128, 130



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Storage and Racking**

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REVISION # 1

# OF PAGES: 3

# **STORAGE AND RACKING**

## **PURPOSE**

Companies can greatly minimize the risk of "a potentially catastrophic" racking collapse by promoting a safety culture that encourages incident reporting, and by taking the appropriate steps to immediately investigate incidents and take action.

## **SCOPE**

If you look at pictures of collapsed racking, it looks like a war zone. Just a mangled mess of intertwined metal pieces that can cover a large area. This can occur when there is a failure to identify and fix racking damage.

Racking incidents usually occur when a heavy piece of equipment, such as a forklift, strikes a racking structure.



## **Preventive Action**

Use these actions to prevent collapse:

- Make sure that racking is able to support the load
- Report any damaged racking to your supervisor right away
- Make sure that you have been trained how to stack product safely on the racks
- Do not hit racking with powered lifting devices
- If corner uprights are not protected against collision damage, provide this protection
- Inspect racking for bent or missing columns, beams, bracing, safety pins, bolts
- Do not use mobile devices while driving
- Report any minor impacts and damage to racks immediately
- Keep aisles clear
- Clean up any spills immediately
- Do not climb on racks



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Storage and Racking**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### **STORAGE AND RACKING**

- Do not use ladders to access racks
- Report any areas where lighting is inadequate

#### **Pallets and Skids**

Loads can fall from racking or storage if a pallet breaks. Lifting a bad pallet that is loaded can cause product to unexpectedly fall on employees in the area. Improperly stored pallets can fall and hit employees.

- Look closely at pallets as they arrive and remove any that are in poor condition
- Before using a pallet, check it for broken, missing or loose slats and discard a damaged one right away
- To prevent bending or breaking when skids are lifted, make sure that they are strong enough for the loads to be placed on them
- Make sure that loads are evenly distributed and will not collapse
- Make sure that loads do not extend beyond the pallet
- Store pallets flat, not leaning against racks posts or walls
- Store pallets outdoors, if possible, to reduce the fire hazard

#### **Stocking Practices**

- Serious injury or damage can result if loads tip and fall from racks, push other loads into the aisle or hit sprinklers, gas lines, lights or heating equipment during restocking.
- Make sure that you are trained to use the lifting equipment
- Before you operate equipment in high locations, check clearances such as pipes, lights, and sprinklers
- Place product well clear of sprinkler heads, lights, electrical panels, and emergency equipment
- Keep stored materials at least 18 inches away from heaters (36 inches away if the materials are combustible)
- Stack loads straight and evenly
- Correct loads that look out of balance
- If a load looks unstable, secure it with plastic wrapping or strapping

### **REQUIREMENTS**

#### **Legislation**

Industrial Regulations 851, Section 45



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Forklift Operation

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

# FORKLIFT OPERATION

## PURPOSE

To be most effective, operator training should be part of a larger comprehensive forklift safety program. This program should include the following elements:

- hazard identification
- training
- operating procedures
- facility design
- maintenance and repair procedures

## SCOPE

### Legislation

The Industrial Regulations 851 has specific sections relating to lifting devices. Subsections 51(1) and (2) apply to a "lifting device", defined as:

"a device that is used to raise or lower any material or object and includes its rails and other supports but does not include a device to which the Elevating Devices Act applies."

This definition clearly applies to forklifts and should be interpreted broadly as including not just the elevating section of it but the entire vehicle.

### Hazard Identification

Clause 25(2)(d) of the Occupational Health and Safety Act (OHSA) requires an employer to: "acquaint a worker or a person in authority over a worker with any hazard in the work..."

This means that AE must identify all hazards associated with the machine as it is used in the workplace. In practical terms, the AE supervisor should identify the ways in which a worker who operates or works around a forklift could be harmed or injured, taking into consideration the equipment used, the jobs to be done and the work environment. This hazard information should be communicated to the worker and be part of the training program.

### Training

Only trained and authorized persons are permitted to operate a forklift. No employees are allowed to operate a forklift without the proper training.

Regulation 851 is more specific and states that a lifting device is only to be operated by a competent person.

In addition to ensuring that the operator of a forklift is appropriately trained, the following measures are suggested:

- Prepare written rules and procedures based on hazard identification for preventing harm, accidents and injuries.
- Ensure that all supervisors and workers who work around forklifts have been informed of the hazards and are instructed in the rules and procedures to avoid harm.
- Inform supervisors and workers of any revisions to the rules and procedures arising from changes in the work.

A "competent" operator should understand:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Forklift Operation

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### FORKLIFT OPERATION

- the sections of the OHSA and Regulations applicable to the work
- the hazards associated with the work, including the principles of operation and features of the forklift, workplace conditions and activities that pose actual or potential danger to health and safety in the workplace
- the manufacturer's specifications as they relate to the safe operation and load handling for the class or type of truck that is to be operated
- the workplace-specific procedures and practices that have been established for ensuring worker safety.

A "competent" operator should be able to perform the following procedures:

- pre-operational check
- start-up and shut-down
- general operation: stopping, starting, turning, driving forward and in reverse, parking, operating around personnel
- load handling: selection and security of loads, pick-up and placement, personnel lifting, stacking and restocking
- operational maintenance: refueling

Currently, all AE forklift operators will be trained by a third-party.

### PROCEDURES

#### Safe Operating Procedures

The following safe operating rules apply to AE employees who operate a forklift:

- Only trained employees shall be allowed to operate forklifts
- Stunt driving and horseplay shall not be permitted.
- Personnel are not permitted to ride on forklifts except in designated seats.
- Forklifts shall be equipped with a portable fire extinguisher.
- Copies of the manufacturer's operating instructions for each type of forklift shall be readily available for review.
- Forklifts shall have the manufacturer's nameplate showing its weight with attachments, lifting capacity, lift height maximum and other pertinent data. Nameplates or markings shall be maintained in a legible condition and remain in place.
- If an operator does not have a clear view, a signaller must be used.
- Loads must be carried as close to the ground or floor as the situation permits.
- Loads that may tip or fall and endanger a worker must be secured.
- The forklift shall be operated at a speed that will permit it to be brought to a stop in a safe manner.
- The operator shall be required to slow down and sound the horn at areas where vision is obstructed.
- No part of a load must pass over any worker.
- Loads carried shall be secured on the forks to prevent upset / overturn.
- When using rigging to secure or lift loads, ensure the proper working load limit of the rigging is confirmed.
- When a load is in the raised position, the controls must be attended by an operator.
- There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler etc.
- Arms or legs are prohibited from being placed between the uprights of the mast.
- When a forklift is left unattended, forks shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Forklift Operation**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **FORKLIFT OPERATION**

- All defects must be reported.

Every forklift should also be equipped with the following:

- a suitable screen, guard, grill or other structure to protect the operator from falling or intruding materials
- warning devices (horn) and lights
- a seat belt

#### **Facility Design**

Poor workplace design can contribute to accidents and injuries. AE should ensure that the following measures are taken as a minimum:

- Overhead and side clearances (through doorways and in rooms) are adequate to permit the safe operation of the forklift.
- Floors, aisles, passageways and outdoor areas are kept clear and free of hazards.
- Storage and racking is designed to facilitate forklift operation.
- Parking areas are designated

#### **Inspection and Maintenance**

Forklifts that are defective, in need of repair or are unsafe shall be locked and tagged out (Danger Do Not Operate) and taken out of service until restored to safe operating condition.

Only qualified personnel shall perform maintenance and repair.

The Occupational Health and Safety Act and Regulation 851 establish legal requirements for the periodic examination of forklifts to confirm their safety and load-handling capability. It is the responsibility of AE to ensure that inspections are completed.

Clause 51(1)(a) of Regulation 851 requires a lifting device to be constructed and equipped in a way to adequately ensure the safety of all workers.

Clause 51(1)(b) of Regulation 851 requires a lifting device to be thoroughly examined by a competent person, before it is used "for the first time" and at least annually, to determine if it is capable of handling its maximum rated load. "For the first time" should be interpreted as "for the first time by the employer".

Clause 51(1)(b) of Regulation 851 requires a "permanent record" of the load-handling capacity examination to be kept. "Permanent record" has a very specific meaning under Regulation 851. A record must be kept for at least one year or such longer period to ensure that at least the two most recent reports or records are kept. This means that if annual examinations were being made, the records would have to be kept for two years. It does not prevent records from being kept for longer periods of time, like the working life-time of the vehicle as would usually be the case.

**Currently all AE forklifts are inspected annually by a qualified third party.**

#### **Management responsibility and commitment**



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Forklift Operation**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **FORKLIFT OPERATION**

AE management understands that the safe operation of vehicles and equipment is essential to protect not only the driver or operator but also the safety of other workers and the public. Furthermore, the preservation and sustainability of the environment is essential.

The procedures and policies described in this section provide instruction, advice, and training to operators and drivers so that incidents can be avoided, and the environment protected. AE will continue to ensure that these procedures are followed in order to comply with all regulatory requirements.

### **REQUIREMENTS**

#### **Training:**

- All vehicle drivers must have the appropriate license class issued by the MTO (i.e. DZ, AZ)
- All forklift operators must be trained

#### **Legislation:**

- Ministry of Transportation, CVOR requirements
- Industrial Regulations 851, Section 51





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Lockout and Tagout**

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REVISION # 1

# OF PAGES: 3

# **LOCKOUT AND TAGOUT**

## **PURPOSE**

All workers must know when and how to lockout and tag a vehicle, machine or tool due to a defect, hazard or because of maintenance.

## **SCOPE**

- Lock-out and tagging is used to de-energize equipment and prevent unscheduled or accidental starting, moving or operating.
- Lock-out and tagging ensures a safe work environment that would normally be dangerous if equipment were to shift or operate. This is required on all equipment when performing repairs, inspections or any other time a machine is shut-down to perform work on it and the worker may be injured because of the nature of the work performed.
- Lockout will also be required when a machine is unsafe to use because of a defect or hazard (ie. no brakes on a loader).
- Small tools must be tagged out and removed from service when they are defective or hazardous (ie. a broken ladder, broken chain, leaking fuel tank on a generator). Bring all small tools to the shop for evaluation.
- Normal maintenance (ie. checking oil) does not normally require lockout because the worker has not removed any safeguards and the procedure is part of a normal daily routine. The worker is not generally exposed to any hazards. Follow manufacturer instructions for more details.
- If a guard must be removed, lockout is required.

The following steps shall be taken:

1. Identify all energy sources (ie. Hydraulic, Mechanical, Electrical, Chemical, Kinetic, Thermal).
  2. Identify the parts to be locked out and the method to lock them out.
  3. Notify all affected personnel.
  4. Shut the power OFF. Make sure all equipment has been de-energized.
  5. Check the moving parts to make sure they have stopped and make sure no material is rolling or falling.
  6. Install your own lock and tag at each place you isolate an energy source. If more than one worker is working, each person must install their own locks and tags.
  7. Check all switches, valves, and gauges. Try operating controls after lock-out to confirm all power is off and locked out.
  8. Turn off all controls again.
  9. Neutralize all stored energy if present
  10. Perform repairs, maintenance and all necessary work.
  11. Remove only your lock and tag
  12. Check all workers are cleared from the moving parts area. Use loud start signal (ie. horn) if possible.
  13. Start-up equipment again.
- The lock's key is only carried by the person who installed the lock.
  - If the lock has 2 or more keys that can open the lock, keep only one key and throw away the rest. Remember: ONE PERSON, ONE LOCK, ONE KEY.
  - The tag shall include the name of the person, the date and the reason for the lockout.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Lockout and Tagout

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### LOCKOUT AND TAGOUT

- Both lock and tag need to be applied.
- Scissor locks will be used for multiple lockouts.
- For electrical powered equipment, the correct breaker(s) must be shut off and locked out at the electrical panel (ie. shop machinery, electric conveyors).
- Battery boxes will be used on fuel (gas, diesel) powered equipment for lockout. The positive battery cable will be removed from the battery and secured in the lock box. In a series of batteries, use the cable from the battery with wires leading to the starter motor or starter relay.

#### NOTE:

**Always refer to the manufacturer instructions for their detailed lockout procedures if available.**

- The specific procedures may vary slightly depending on the equipment and set-up.
- Advise your supervisor that the equipment is locked out.

**WHEN IN DOUBT, ASK SOMEONE WHO KNOWS**



**ALWAYS USE THE LOCK AND TAG TOGETHER**



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Lockout and Tagout**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# **LOCKOUT AND TAGOUT**

## **REQUIREMENTS**

- All workers must understand and follow the proper procedures when working around electrical equipment and the requirement to lockout and tagout.

### **Legislation:**

- Industrial Regulations 851, Sections 40-43
- Construction Regulations, Section 188
- Mining Regulations, Sections 155-159,



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Crane Operation**

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# **CRANE OPERATION**

## **PURPOSE**

The safe operation of cranes by AE workers is essential for the health and safety of both the operator and others in the vicinity of the crane and its load.

## **SCOPE**

AE currently operates 2 types of cranes:

1. Overhead (bridge) crane in the maintenance shop
2. 0-8 ton mobile cranes on field service vehicles

A mobile crane is a mechanical device or structure that incorporates a boom that is

- a. capable of moving in the vertical and horizontal plane
- b. capable of raising, lowering or moving a load suspended from the boom by a hook or rope and
- c. mounted on a mobile base or chassis.

### **Training**

Operators of both types of cranes must receive training and instruction on the proper operation and inspection of each crane. Currently third party trainers are used.

### **Crane Hazards**

Hazards involving cranes can lead to catastrophic events. Hazards relating to this type of equipment can include:

- Struck-by injuries from moving equipment
- Electrocution from contact with overhead powerlines
- Crushing injuries from equipment overturning
- Dropped Loads

When working with cranes, dropped loads are one of the most common safety hazards. Improper operator training, side pulling with the crane, poor rigging technique, using an incorrect lifting device and hoist overloading, are the most common causes for dropped loads.

To help avoid dropped loads and increase crane safety, the following safety checks should be considered in addition to any inspections or training required:

- Make sure that all crane operators have complete and up to date training.
- Always follow the manufacturer's guidelines for proper maintenance.
- Test that all motion's travel speed matches the intended specifications.
- Ensure that the wire rope is not twisted, kinked or damaged, in addition, check to ensure all other limit devices are properly functioning.

### **Hoisting and Rigging**

- Ensure all loose materials, parts, blocking and packing have been removed from the load before lifting.
- The centre of gravity of the load shall be directly below the crane hook when rigging the load.
- Remove any slack from the sling and hoisting ropes before lifting the load.
- Make sure that the lifting device seats in the saddle of the hook.
- Verify that the load is not heavier than the maximum load capacity.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Crane Operation

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### CRANE OPERATION

- Loads must not swing when the hoist is moved, raised or lowered.
- Crane operators should position themselves with operating pendants to the side of the load being lifted and keep loads as low as possible during movement.
- No one is to remain under the load while being hoisted.
- Hoist hooks shall be raised to an appropriate height when parking the crane.

#### Operating Crane

Mistake: As long as the hoist has enough rope, I can pull a small piece of steel out of the adjoining bay without a problem. After all, the piece I'm picking up is well below capacity.

This is one of the most common mistakes made with cranes. Cranes are designed to lift straight up and lower straight down only.

Mistake: I don't need to worry about overloading an overhead crane; the manufacturer built a big safety factor into its design.

This is the single most dangerous misconception about overhead cranes. Although some parts of an overhead crane are designed with a built-in safety factor, this is not true of the whole crane system. 80% of all cranes structural failures can be attributed to exceeding the crane's operational capacity.

#### Safe operation:

- Move crane controls smoothly. Avoid abrupt, jerky movements of the load.
- Follow signals only from one signaler in charge of the lift, except a stop signal.
- Make sure everyone is away from the load before hoisting. Sound a warning device and start to hoist slowly.
- Ensure nothing links or catches on the load while raising it or traveling.
- Ensure that nothing obstructs the movement of a load.
- Keep the load under control when lowering a load.
- Do not lower the load below a level that corresponds to less than two full wraps of wire rope left on a drum.
- Do not operate a crane if limit switches are out of order, or if cables show defects.
- Do not attempt lifts beyond the rated load capacity of a crane or slings.
- Do not allow anyone to ride on a load or hooks.
- Do not leave slings dangling from the load hook.
- Do not raise loads higher than necessary to clear objects.
- Do not pass a load over workers.
- Do not reverse a motor until it has come to a full stop except to avoid accidents.
- Do not leave suspended loads unattended.

Knowing how cranes should be used and how they should not be used is critical to crane safety.

#### Inspection and Maintenance



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Crane Operation**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### **CRANE OPERATION**

Daily inspection is the simplest but most overlooked rule of crane operation. This type of inspection doesn't require a maintenance person, just a common-sense checklist.

- The equipment must be maintained as per the manufacturer's recommendations.
- Inspections and non-destructive testing must be performed (when required by the regulations) and records maintained.
- Maintenance reports and log books must be up-to-date.
- Structural components of the equipment must be working properly.
- Safety system indicators must be used and functioning properly.
- Mobile crane documentation includes a review of the operator log book and operator manual and proof that the crane was properly inspected and maintained.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Field Service**

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 1

## **FIELD SERVICE**

### **PURPOSE**

Field service mechanics are subject to various regulations at different locations. The mining, construction and industrial regulations must be followed when working at AAROC Aggregates, J-AAR Excavating, Concrete Forming and Dutch Bros sites

### **SCOPE**

#### **Workplace Risk Assessments**

Risk assessment is the process where you:

- A) Recognize and identify hazards that can expose a worker to a risk of injury or disease
- B) Assess the risk of a worker getting harmed if exposed to the hazard
- C) Fix the problem by eliminating or controlling the hazard
- D) Resume work. Monitor and re-evaluate

AAROC Aggregates shall develop and maintain written measures to eliminate or control the hazards, and potential hazards, identified in a risk assessment.

The Mining Regulations state that:

5.1 (1) An employer shall conduct a risk assessment of the workplace for the purpose of identifying, assessing and managing hazards, and potential hazards, that may expose a worker to injury or illness.

Each AAROC pit location will have a risk assessment completed that addresses all the actual or potential hazards. Mechanics and AE workers may need to review the risk assessment before work can proceed depending on the task(s).

The risk assessment will typically be posted in the scalehouse or trailer.

#### **Hazard Control**

Hazard control methods are often grouped into the following categories:

- Elimination (including substitution): remove the hazard from the workplace, or substitute (replace) hazardous materials or machines with less hazardous ones.
- Engineering Controls: includes designs or modifications to plants, equipment, ventilation systems, and processes that reduce the source of exposure.
- Administrative Controls: controls that alter the way the work is done, including timing of work, policies and other rules, and work practices such as standards and operating procedures (including training, housekeeping, and equipment maintenance, and personal hygiene practices).
- Personal Protective Equipment: equipment worn by individuals to reduce exposure such as contact with chemicals or exposure to noise.

### **REQUIREMENTS**

#### **Legislation**

Mining Regulations 854

Construction Regulations 213

Industrial Regulations 851



DUTCH BROTHERS







**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Health and Safety Policy Statement**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

## **POLICY PROCEDURE**

### **PURPOSE**

The Officers of CF shall take all reasonable precautions to ensure that the company complies with all pertinent legislative requirements and standards in all CF workplaces.

### **SCOPE**

#### **Health and Safety Reporting Structure**

The Internal Responsibility System (IRS) is used to address all Health and Safety concerns in the workplace. The system requires that all Health and Safety issues be dealt with internally through the co-operation between management and workers.

All health and safety concerns must be addressed and resolved. In most cases, the immediate supervisor shall make the appropriate changes in conditions or work methods to ensure Health and Safety of workers. More complex problems can be referred along the chain of command until Health and Safety concerns are rectified.

All supervisors are required to deal with Health and Safety concerns promptly and successfully. If any assistance is required, contact the H&S Department.

#### **Constructor / Prime Contractor**

- Ensure that all appropriate documentation for the start-up of a project has been processed
- Ensure that the measures and procedures required by all legislative authorities are implemented; for example the Occupational Health and Safety legislation for Construction projects and the Constructor/Prime Contractor's own Health and Safety Program
- Ensure that employers and workers in the workplace comply with
- the Act and Regulations and the Constructor/Prime Contractor's Health & Safety Program

#### **Owner**

- Determine before a project begins, whether any designated substances are present at the project workplace and shall prepare a list of all designated substances that are present at the workplace
- includes the list of designated substances with the tender and ensure that the Constructor/Prime Contractor has received the total list prior to entering into a binding contract

#### **Architects, Engineers, Consultants**

Architects, Engineers and Consultants are employers under the Occupational Health and Safety Act and as such are responsible for the Health and Safety of their employees. In addition, when within CF workplaces, they are required to comply with CF Health & Safety Program.

#### **Visitors**

When on an CF work site, visitors are expected to be in full compliance with applicable legislated safe workplace standards and in compliance with the standards and procedures contained in this manual.

Visitors must also:

- Report to the job supervisor and obtain permission to visit the workplace prior to entering the site and shall be escorted by a CF representative at all times as well as sign in and out from site H&S\_FORM\_003



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

**Section: Health and Safety Policy Statement**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

**POLICY PROCEDURE**

- Comply with any and all applicable legislative and Occupational Health & Safety regulations
- Wear all required personal protective equipment
- Report all injuries
- Report any unsafe conditions or practices observed as soon as possible
- Keep private vehicles away from the work area
- Upon entry, each visitor to a CF workplace must sign a Visitor Responsibility H&S\_FORM\_004 that is reviewed with the visitor by a CF representative. CF representative who escorts the visitor is responsible for the visitor while in CF workplace. If applicable, visitors must be informed of site emergency plans or workplace hazards that may be encountered.

**Note:** A visitor is typically classed as a supplier/salesman type individual. Subcontractors, Clients and Engineering Companies who visit projects to inspect, direct and/or manage work are required to take the regular site safety orientation training.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Workplace Violence and Harassment Assessments

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REVISION # 1

# OF PAGES: 6

# WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS

## PURPOSE

This section outlines Concrete Forming's workplace violence and harassment policy and program. It details the responsibilities of the employer and gives information and instructions to workers who may be exposed to violence and/or harassment.

## DEFINITIONS

### Workplace Violence:

- The exercise of physical force by a person against a worker, in a workplace, that causes or could cause physical injury to the worker,
- An attempt to exercise physical force against a worker, in a workplace, that could cause physical injury to the worker.
- A statement or behavior that it is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker.

Examples of workplace violence include:

- verbally threatening to attack a worker;
- leaving threatening notes at or sending threatening e-mails to a workplace;
- shaking a fist in a worker's face;
- hitting or trying to hit a worker;
- wielding a weapon at work;
- throwing an object at a worker;
- sexual violence against a worker;
- kicking an object the worker is standing on such as a ladder or
- trying to run down a worker using a vehicle or equipment.

### Domestic Violence

A person who has a personal relationship with a worker- such as a spouse or former spouse, current or former intimate partner or a family member- may physically harm, or attempt or threaten to physically harm, that worker at work. In these situations, domestic violence is considered workplace violence.

### Workplace Harassment:

- engaging in a course of vexatious comment or conduct against a worker in a workplace that is known or ought reasonably to be known to be unwelcome or;
- workplace sexual harassment

### Workplace sexual harassment:

- engaging in a course of vexatious comment or conduct against a worker in a workplace because of sex, sexual orientation, gender identity or gender expression, where the course of comment or conduct is known or ought reasonably to be known to be unwelcome, or;
- making a sexual solicitation or advance where the person making the solicitation or advance is in a position to confer, grant or deny a benefit or advancement to the worker and the person knows or ought reasonably to know that the solicitation or advance is unwelcome



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Violence and Harassment Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

## **WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS**

Workplace harassment can involve unwelcome words or actions that are known or should be known to be offensive, embarrassing, humiliating or demeaning to a worker or group of workers. It also includes behavior that intimidates isolates or even discriminates against the targeted individual(s).

This may include:

- making remarks, jokes or innuendos that demean, ridicule, slander, intimidate, or offend;
- displaying or circulating offensive pictures or materials in print or electronic form;
- bullying;
- repeated offensive or intimidating phone calls or emails;
- inappropriate sexual touching, advances, suggestions or requests.

### **What isn't workplace harassment?**

Reasonable action or conduct by an employer, manager or supervisor that is part of their normal work functions would not normally be considered workplace harassment. This is the case even if there are unpleasant consequences for a worker. Examples include:

- changes in work assignments;
- scheduling;
- job assessment and evaluation;
- workplace inspections;
- implementation of dress codes or PPE and
- disciplinary action.

Differences of opinion or minor disagreements between co-workers would also not generally be considered workplace harassment.

In addition, any behavior that would meet the definition of workplace violence would not be considered workplace harassment.

### **Workplace Risk Assessments**

- Management will review and assess the risks of workplace violence that may arise from the nature of the workplace, type of work or conditions of work.
- Take into account the circumstances of Concrete Forming Limited workplaces and circumstances common to other similar workplaces.
- Develop measures and procedures to control identified risks that are likely to expose a worker to workplace violence and harassment.
- Advise the J.H.S.C., or the Health and Safety Representative of the risk assessment results.
- Repeat the assessments as often as necessary to ensure the workplace violence/harassment policy and program effectively protects workers.

Management will involve the Joint Health and Safety Committee in developing written programs and procedures, regarding workplace harassment which addresses:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Workplace Violence and Harassment Assessments

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

### WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS

- o the reporting of incidents;
- o the investigation process;
- o how the investigation information will be kept confidential, except for the purposes of taking corrective action or required by law;
- o training under the programs and procedures; and
- o an annual review of the programs and procedures.

### PROCEDURES

All workers must consider the following safe work procedures:

#### Mobile Crews (Worksites)

- Ensure you are able to call for help. Use 2-way radios and/or cell phones in an emergency.
- Keep vehicles well maintained.
- Park all vehicles/equipment in designated safe areas. Inspect as often as necessary.
- Keep trailers locked when not in use. Maintain all lighting if possible.
- Designate a safe meeting area for all workers in case of emergency.
- Work in groups when possible. Work the same operating hours as other workers. If working alone, follow written safety procedures for working alone.
- Perform regular jobsite inspections.
- Review any potential jobsite risks from tender documents and/or client.
- Report all suspicious persons to supervisor.

#### Main Office

- Maintain outside lighting and keep paths, walkways and parking areas clear of obstructions.
- Maintain visitor / public entrances.
- Keep all doors not in use locked or secure.
- Maintain security alarm and security cameras.
- Front reception area should be staffed during business hours. Lock visitor doors when reception is unavailable. Keep all windows, doors and sightlines clear.
- All visitors must report to front reception desk and only enter employee areas of the building when escorted by an employee.
- Keep all cash and other valuable goods locked and hidden.
- Designate a safe meeting room(s) for employees during emergency.
- Keep all lines of communication operating- 2-way radios, phones
- Work in groups. Maintain regular operating hours with other employees. If working alone, lock all non-essential doors. Follow working alone policy.

#### Drivers / Transport

- Passengers are restricted to company employees or those satisfactory to the driver. The general public is not given access to vehicles.
- Any cash/documents should be kept in a locked vehicle and handed in at the end of the shift.
- Maintain communication with other employees (i.e. dispatch, foreman) with 2-way radios or cell phones. If working alone, follow policy.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Violence and Harassment Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

### **WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS**

- Keep vehicles regularly maintained.
- Park in designated, well-lit areas.
- If drivers are to work in high-risk locations, information will be given by office/dispatch prior to job start.
- Never leave your vehicle / machine unlocked at night or on breaks.

#### **Emergency Response Plan- Summoning Assistance**

Workers shall:

- Immediately call for assistance if they are a victim of or witness workplace violence. If alone, call for 9-1-1 police assistance, followed by a call to your supervisor. If working in a crew, call the supervisor.
- EMERGENCY PHONE NUMBERS shall be posted at all worksites.

Supervisors shall:

- Call 9-1-1 and get assistance from the police in a violent situation. If required, call for ambulance services as well.
- Keep all other employees in a safe area away from the parties involved.
- Do not attempt to physically separate the parties involved if the violent behavior is on-going.
- Safely remove from the area anything that could be used as a weapon.
- Provide all necessary information to police if required.
- Report the incident to senior management as soon as possible.

#### **Reporting Workplace Violence / Harassment**

All workers who have been the victim of or witnessed workplace violence or harassment shall report the following information to their supervisor:

- Date, time of the incident;
- Location of the incident;
- Who were the parties involved;
- Description of the altercation/incident. Contributing factors. Physical or verbal issues. Outcome.
- Any information about other witnesses;
- Possible recommendations for prevention.

**NOTE:** If the Supervisor is the alleged harasser, then the victim can report to a Manager, Owner, the Ministry of Labour or Police.

#### **Investigating Workplace Violence / Harassment**

Management will investigate all matters involving violence or harassment in the following manner:

- Supervisors will report the incident to management.
- Parties involved will meet to discuss the incident. Corrective actions and solutions will be recommended. (Police actions may determine outcomes).



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Violence and Harassment Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

### **WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS**

- If the parties are satisfied with management's response, no further action will be taken. The written investigation and corrective actions will be filed.
- If the parties are not satisfied with management's actions, the Ministry of Labour may be called upon to investigate and offer recommendations.
- The written investigation and any corrective actions shall be available to both the victim and alleged harasser. Privacy concerns and confidentiality will be respected when writing and reviewing reports.

NOTE: Third-party agencies specializing in workplace violence and harassment may be called in to investigate.

All revisions to the program to prevent any future recurrences of the reported incident will be given to the J.H.S.C. or Health and Safety Representatives.

#### **Information about a Person with a History of Domestic Violent Behaviour**

The Occupational Health and Safety Act clarifies that employers and supervisors must provide workers with information, including personal information, related to a risk of workplace violence from a person with a history of violent behavior.

#### **However, this duty is limited and applies only when the:**

- worker can be expected to encounter the violent person in the course of his or her work and;
- risk of workplace violence is likely to expose the worker to physical injury.

Employers and supervisors must also not disclose more information than is reasonably necessary for the protection of a worker from physical injury.

The employer has to take into account a person's right to privacy under certain laws in addition to a workers' right to be informed of workplace violence risks under the O.H.S.A.

It is the policy of Concrete Forming to seek legal advice to comply with this regulation when this type of information is discovered or reported.

#### **Domestic Violence**

Under the O.H.S.A. an employer must take every precaution reasonable in the circumstances for the protection or workers when they are aware, or ought reasonably to be aware, that domestic violence may occur in the workplace, and that it would likely expose a worker to physical injury.

Workers can report their concerns to their employer if they fear domestic violence may enter the workplace.

Employers must be prepared to investigate and deal with these concerns on a case by case basis.

In developing a plan, employers and workers may be able to work with the police, courts or other organizations who may already be involved.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Workplace Violence and Harassment Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

### **WORKPLACE VIOLENCE AND HARASSMENT ASSESSMENTS**

It is the policy of Concrete Forming to seek legal advice to comply with this regulation when this type of information is discovered or reported.

#### **Work Refusals**

Under the O.H.S.A. a worker can refuse to work if he/she has reason to believe they may be endangered by workplace violence. A worker may refuse work if he/she reasonably determines that a threat to exercise physical force could cause injury to the worker.

However, work cannot be refused on the grounds of workplace harassment.

The Act sets out a specific procedure that must be followed in a work refusal. It is important for employers, supervisors, workers, J.H.S.C. and safety representatives to understand and follow this procedure.

#### **REVIEW**

Management and the J.H.S.C. will review the violence and harassment policy and program annually.

#### **ENFORCEMENT**

Following this procedure is a condition of employment for all employees. This will be enforced strictly by management and supervision. Failure to follow this procedure, as set out, may lead to progressive discipline up to and including dismissal or removal from site as deemed appropriate by Concrete Forming

#### **REQUIREMENTS**

##### **Training:**

All employees will undergo a review and understanding of the policy and program. This will occur through the new employee orientation. Initially this was completed at the annual safety meeting.

##### **Legislation:**

Occupational Health and Safety Act, Section 32





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Emergency Planning**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# **EMERGENCY PLANNING**

## **PURPOSE**

CF is committed to having an Emergency Plan in place for each workplace to assist workers and the public to respond to any emergency situation. In the event of a crisis situation please refer to the Crisis Management section of this manual under "Crisis Management Plan".

## **SCOPE**

### **Emergency Plan**

All workplaces require the Emergency Information Poster H&S\_FORM\_014:

1. A method for reporting the emergency
2. A list of workers responsible in emergency situations and how to contact them
3. A plan for incident investigation and correction of hazard
4. A list of phone numbers for emergency and support services should be posted

Workplaces may also require:

- A method for sounding the alarm
- A description of potential emergencies
- A map of the work place that shows evacuation routes and head-count location, as well as the location of emergency equipment, first aid station, fire sprinklers, alarm pulls, and extinguishers
- Manager's routine for shutdown of the job
- Responding to an emergency that may require rescue evacuation by trained personnel
- An evacuation, head-count and rescue plan

### **Emergency Plan Testing**

At the discretion of the supervisor, emergency plan rehearsals may be held, use the Fire/Evacuation Drill Evaluation H&S\_FORM\_015. A rehearsal shall require:

1. Notification of emergency services, all supervisory personnel and possibly prior notification of all workers
2. A predetermined all-clear signal to allow rapid return to work
3. An evaluation system to determine the effectiveness of the Emergency Plan (This is usually only a stopwatch timing to determine evacuation time)

**Note:** Existing offices or buildings are required to conduct fire drills as per the local fire/building code. Consult with the H&S Department for further information.

### **Standard**

An Emergency Plan is required in all CF workplaces. All managers are required to ensure the Emergency Plan is current, in place and relevant to the specific scope of work.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Emergency Planning

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# EMERGENCY PLANNING

## Planning the Emergency Program

If the project is located within a plant which has an existing emergency and evacuation plan, the supervisors must learn it and establish only those procedures necessary to complement the plant system and ensure a complete Emergency Plan for the project site.

## Emergency Planning Update and Review

When workplace changes occur that may affect the existing Emergency Response Plan, the plan will be reviewed or updated to ensure any changes required are made.

Workplace changes to consider as a requirement for review or update may include a new or different work activity, equipment or personnel or post incident.

## PROCEDURE

All projects require an Emergency Plan. The magnitude and complexity of the plan depends on the size of the project/workplace. The plan can also be reviewed with local authorities. Required elements are:

1. A method for reporting the emergency generally telephone is the most effective. However, an alternative should exist (perhaps notification with the plant, or police notification from the nearest available phone if the emergency disables the site's office phone lines).
2. A list of workers responsible in emergency situations and how to contact them.
  - This should be plainly posted and available.
3. A plan for incident investigation and correction of hazard.
4. A list of phone numbers for emergency and support services
  - This should be posted at all telephones.
5. A method for sounding the alarm:
  - In a major project a siren may be required but a small project may only require an air horn or warning bell
6. A description of potential emergencies.
  - This is extremely important from an educational standpoint. Emergency preparedness is essentially based on anticipating all possible crises
7. A map of the work place that shows evacuation routes and head count location, as well as the location of emergency equipment, first aid station, fire sprinklers, alarm pulls, and extinguishers.
  - This should be designed at the start of the job and posted in the offices, lunch rooms, tool cribs and first aid stations
  - For offsite locations, emergency equipment should be identified and reviewed with workers prior to commencing work activities.
8. Manager's routine for shutdown of the job
  - This should be established to ensure that if a shutdown occurs no potential hazard may be left (for example, an orderly shutdown ensures that tank valves and electrical supplies to welders are closed and disconnected)
9. A system for communication, both internal and external
  - In most workplaces/projects, portable 2-way radios are used. Emergency alarms are also considered to be communication devices and must be available. In the event of an emergency, only designated spokespeople shall communicate with plant authorities, media and legislative authorities.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Emergency Planning**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

## **EMERGENCY PLANNING**

- For offsite locations, emergency equipment should be identified and the plan should be reviewed with workers prior to commencing work activities.
10. An evacuation, head-count and rescue plan
- Rescues should only be attempted by trained persons and only if they do not risk injury to themselves. External emergency services will be used in the event rescue is required.
  - Roll-call systems may vary, but generally each foreperson should count his/her workers and report to the supervisor



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Crisis Management Plan**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

# **CRISIS MANAGEMENT PLAN**

## **PURPOSE**

This plan covers internal procedures to address a crisis situation or a threat of one arising from CF job sites, offices and premises.

A Crisis Management Plan is designed to maintain CF credibility and positive image with all of its identified audiences in the face of adversity.

It is essential to be prepared for every urgent situation or emergency in an organized and controlled fashion.

Our customers, employees, management, financial supporters, industry peers and others, should all feel we were well organized and handled the situation in a professional manner.

## **DEFINITIONS**

The dictionary defines "Crisis" as a turning point, time of danger or suspense.

This could mean a situation or an unplanned event has occurred whereby an accident or incident has caused serious injury, property and/or structural damage.

It could also mean threats and similar situations that should be addressed immediately by police and/or other authorities.

Note: Please "Do **N o t**" be tentative to initiate the crisis plan, it only means more assistance and help to deal with the situation.

## **PROCEDURES AND RESPONSIBILITIES**

It is very likely that the first notification of a crisis or a situation that threatens the safety of CF employees and/or the public will be initiated from our Construction Sites and Industrial Establishment therefore the following reporting protocol will be followed.

### **1. Most Senior Project/Workplace Manager**

- Contact emergency services
- Gather all available information (who, what, when, where, why & how)
- Notify the Safety Manager
- Notify Senior Management
- Inform any surrounding areas that may be affected by the incident.
- Initiate incident report

### **2. H&S Team**

- Investigate all incidents, injuries, illnesses, fatalities, property damage

### **3. Project Management**

- What happened? Who is involved? Where did it happen? When did it happen?
- Why did it happen? How did it happen?
- Notify the receptionist on how to route calls
- Any injuries (public or workers)
- Inform other sites if necessary



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Crisis Management Plan**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

## **CRISIS MANAGEMENT PLAN**

### **Assignments**

#### **1. Media Spokesperson – President or most senior person**

- Assemble necessary background facts (who, what, where, when, why and how)
- Designate someone to screen media calls for the spokesperson (if possible).
- Start media log.
- Anticipate media questions, determine what information is to be released and craft key messages before speaking to the media.
- Write and get clearance for all releases.
- When possible/applicable, advise reporters of time and place for future updates.
- If you elect to give the media a tour, make certain that the area is safe (consult H&S Department).
- Follow-up all media inquiries, even when you can provide no new information.
- Log each conversation with the date, time, reporter's name, publication/station, information given.

#### **2. Media Calls**

- All calls are to be directed to the media spokesperson
- Track and record all calls

All other CF employee(s) who receive notification directly of a crisis situation, or a threat of one, should report the situation to their immediate supervisor immediately and should not attempt to deal with the situation themselves. Immediate supervisors should follow the protocol in this manual to deal such situations.

### **Family Notification CEO or VP**

1. **Fatality Notification** – This is usually done by the police however should you be called upon to do this please follow these guidelines.
  - Determine where you will meet. Will the contact be at home, work, or school? If it's outside of the home, arrange with the relative's employer or school for a private place to meet. Verify that you are talking to the correct person, i.e.: "Are you Sandy Johnson's sister?").
  - Don't go alone. You'll need support as well so take a fellow employee, the superintendent, a friend of the worker, or Minister. Try to assess the stability and health of the relative. If the notification is likely to cause an immediate health problem, you may need to have a health care professional along.
  - Obtain the full name, address of the deceased. Next, get the full name of the next of kin and the relationship (wife, brother, mother, etc.). Gather all information relative to the cause so you can provide an explanation.
  - Decide what you will say. There's no easy way to say that someone has died, so don't try it. Speak simply and directly. Using terms like "mortally wounded" only confuses people. While it's not necessary to be blunt or cold, at some point it's necessary to say "dead" or "died". Example: "Mrs. Jones, there was a very bad accident this morning at the project. Charlie was moving a ladder and fell over a guardrail. The paramedics did everything they could, but he died instantly."
  - Be prepared for emotions. There will be shock, denial, grief, numbness, anger at the deceased, at you, at the medical staff, at other people. Let the relative vent their feelings. Use common sense and do what seems appropriate at this time. Some people will appreciate a touch of a hand, others will not.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Crisis Management Plan

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### CRISIS MANAGEMENT PLAN

#### 2. Non-Fatal – Critical Accident Notification

- Member of senior management, will contact spouse/family in event of critical or serious injury – can be assisted by the H&S Manager, etc.
- Determine the extent and nature of the injuries.
- Determine what hospital the person is being taken.
- Call the family to explain only that there has been an accident and that the employee has been injured.
- If the injury appears to be serious and you are questioned, say "We can't be sure until we hear from a doctor."
- Arrange for transportation to the medical facility.
- Arrange to have someone look after any young children.
- Discourage them from driving themselves unless they absolutely insist.
- If the victim's family is in need of money to cover small expenses, assist as needed.

#### 3. General Comments on Notification

Always listen. The formula is 90% listening and 10% talking. If the relative needs to go to the hospital, funeral home, etc. you may offer to drive them or get them a cab. If there are children involved, help arrange for a sitter or a friend to look after them.

Note: When it's over. You've gone through an extremely stressful event. Take care of yourself now. Find someone to talk with about what you just went through. No one ever gets use to this.

#### Media Spokesperson Guidelines

##### 1. Prepare

- Get the facts. Understand what you are talking about
- Determine ahead of time what information is to be released
- (Usually the WHAT, WHERE & WHEN but not always the WHO, HOW or WHY)
- Establish key messages – and write them down
- Anticipate the media's questions - and your answers

##### 2. Be Honest

- Never lie (sidestepping is okay – outright lies are not)
- Never guess (if you don't know the answer, find out before speaking)

##### 3. Set Limits

- Always remember, YOU are in charge of the interview (even though "they" are asking the questions).
- Never let media put words in your mouth (i.e. Always choose your own words).
- Always know what info you are willing to release and what your limits are.
- Expect the media to want:
  - Details (how many injured, how seriously, their names, ages etc)
  - Impact (how long will the road/plant be closed? How many affected?)
  - Status (is there a police/fire/ministry investigation? Where does it stand?)
  - Direction (what happens now? What changes are likely? And



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Crisis Management Plan**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **CRISIS MANAGEMENT PLAN**

- Conflict (who was at fault? Will there be charges?)

Stay Focused – Remember you are speaking for CF (everything you say is quotable!)

- Be sure to get your key facts and message out early in every answer
- Say what you want to say and then stop talking
- Keep your key messages in front of you and return to them often

Note: Never release the names of injured persons until their families are aware you are doing so!

#### **4. Safety Overview for Media**

- CF is very concerned about job-site safety. It is our first “corporate value” and we have a well-established, comprehensive safety program.
- CF Safety Program is distributed and administered on all of our projects.
- Required safety documents are displayed at all job sites.
- CF requires safety meetings at each job-site for its employees and requires attendance. We also request that a senior employee from each of our Subcontractors attend, or hold their own meeting.
- CF meets or exceeds all local, regional, and national safety requirements and standards.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Hazard Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

# **HAZARD ASSESSMENTS PROCEDURE**

## **PURPOSE**

DB/CF is committed to ensure that all tasks are assessed to identify known or potential hazards associated with the work. A Job Hazard Analysis (JHA) or Field Level Risk Assessment (FLRA) H&S\_FORM\_010 will be utilized to identify hazards associated with the tasks undertaken by CF employees to identify the hazards and controls necessary to perform the work safely. Managers, Supervisors, Joint Health and Safety Committees and workers as applicable should be involved in the development of the hazard assessment and must be reviewed with all workers performing the tasks.

## **DEFINITIONS**

### **Hazard**

A hazard is something that has the potential to cause harm.

### **Risk**

Is the likelihood of harm to occur.

## **SCOPE**

### **Job Hazard Analysis**

The purpose of a Job Hazard Analysis (JHA) is to identify hazards or potential cause of accidents in each step of the operation and to develop solutions to eliminate or control these hazards. A JHA may be conducted for the following tasks:

- Confined Space entry
- Locked-out systems
- Work on high pressure liquids or gas systems
- Hydro-testing at high pressures
- Toxic or hazardous substances
- Cutting into existing lines and tanks
- Major traffic patterns
- Working at heights
- Rigging and hoisting
- Work with gases present
- Work around high voltage power lines and bus bars
- Exposing underground utilities
- Working over or near water

This list is not exclusive and may be supplemented according to site-specific requirements.

### **Steps in Conducting a Job Hazard Analysis**

1. Define the task – what is to be done/description.
2. Review previous JHA if any – have we done it before?
3. Identify the steps – what is to be done in order of execution.
4. Identify the hazards for each step.
5. Identify who or what could be harmed.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Hazard Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### **HAZARD ASSESSMENTS PROCEDURE**

6. Give the task a Risk Rating = Consequence + Likelihood
7. Develop solutions to eliminate or control hazards in each step.
8. Review the Risk Rating after the control system has been implemented.
9. If Risk Rating is unacceptable review the solutions till Risk Rating is acceptable.
10. Agree who will implement the control system.
11. Document the JHA and discuss with the relevant personnel.
12. Educate workers regarding the hazard through a review of the JHA at safety meetings and FLRA daily meetings. Instruct workers on Safe Work Practices and Procedures which are relevant to the hazard control are included with the JHA. Determine if a hazard can be solved by training and the type of training required
13. Identify high risk workers and tasks
14. If applicable, attach supporting practices and procedures

#### **Suggested sources of information on potential hazards are:**

- Reported industry accidents
- Safety Opportunity data
- Compliance & legislative requirements
- Suggestions from the Joint Health & Safety Committee/Health & Safety Representative and/or Worker Trades Committee

#### **Key Questions to Ask**

##### **Materials**

- Can a less hazardous or less costly material be used and still do the job?
- Can materials be substituted that will last longer, resist corrosion, wear, shock, abrasion, heat, etc.?
- Are there materials that can do the job more easily and quickly?
- Can material waste be reduced?
- Is there a better work method or better way to store materials?
- Is all material stored in a safe and stable fashion (e.g. piping)?
- Is there a more efficient way to transport and handle materials?
- Are there salvageable parts or leftovers that need to be separated?
- Is material damage possible, preventable?
- Is there excess material at the work site? Can it be better controlled? Is the excess unsafe?

##### **Tools and Equipment**

- Can other tools or equipment be used that will do the job more safely and efficiently?
- Are the tools subject to breakage or breakdown? Is such breakdown unsafe?
- Can these tools be replaced?
- Can tools or equipment be moved to be more efficient?
- Is all equipment being utilized?
- Is standby equipment necessary?
- Can power tools be used instead of hand tools or vice versa?



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Hazard Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

## **HAZARD ASSESSMENTS PROCEDURE**

- Is additional lighting or similar support equipment required?

### **Personnel**

- Is there enough manpower to complete the job safely and efficiently?
- Are specialty trades required?
- Are there too many or too few workers from the standpoint of efficiency or safety?
- When the job step is finished, is there something else that should be done to improve work safety or efficiency? Example: cleaning, inspecting or servicing?
- Is the time and method required to get workers to and from the work site excessive?
- Is access to the work site adequate and safe?
- Are the right people assigned to the job?
- Are all workers properly trained for their positions so they can perform their work safely and efficiently?
- Is further training required?

### **Job Methods**

- Can a job step be eliminated by a change in job method?
- Is there a particularly slow or difficult job step?
- Can the step be improved by breaking it down into additional steps?
- Where is the best location for doing various job steps?
- Will pre-job planning and organizing benefit a particular job step?
- Will pre-work training improve safety?
- Can the job step be done safer and quicker by use of machines?
- Will a change be cost effective without compromising safety?
- What is the most efficient way to lay out cords, lights, or tools?
- Are there hazards that raise the time required to do the job?
- Can these be scheduled for shutdown removal or controlled?

### **Field Level Risk Assessment (FLRA)**

The Field Level Risk Assessment (FLRA) provides a process for workers and supervisors to identify in the clearest manner possible the hazards of daily tasks and how to control or eliminate them from the activity.

It is designed to review the immediate task to be performed for potential health and safety hazards associated with the activity. This is a field level risk review not a JHA. If the task is complex enough that it warranted a JHA and/or Safe Work Practice and Procedure, this is the time to review those documents with all workers.

This process is to be reviewed with workers by their supervisor to identify job risk hazards and the appropriate controls. Any questions or concerns during the review by workers are to be addressed.

All workers present must acknowledge that they understand the tasks and controls to ensure their safety. At the end of the shift the supervisor will have all workers sign off that they reported all incidents. Any incidents or injuries during the day must be reported to supervisor prior to the sign off.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Hazard Assessments**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

## **HAZARD ASSESSMENTS PROCEDURE**

This assessment can be done on a daily basis or a 'per task' basis to deal with changing conditions of a construction site.

The FLRA cards can be utilized in a manner that is suitable for the work environment. This includes being conducted:

- Jointly – Supervisors and crew
- Workers – Reviewed by Supervisor

There is one standard FLRA card that can be utilized



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Orientation, Education, and Training**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

# **ORIENTATION, EDUCATION, AND TRAINING PROCEDURE**

## **PURPOSE**

CF recognizes that Orientation, Education, and Training of CF's workers are a vital part of the Health & Safety program. CF will ensure that supervisory staff have the competency based knowledge and skills to instruct workers in safe work practices and procedures, to give Tool Box Safety Talks and to meet ongoing requirements for safety instruction. Instruction will be provided to all workers. All workers are required to take training and comply with safe work policies, practices, and procedures. All visitors must be accompanied by a CF Employee.

## **SCOPE**

Project Management will ensure that all CF supervisors, or individuals that have direct control and authority over workers, will be orientated to their responsibilities as they pertain to fulfilling their roles as supervisor in regard to workplace health and safety and receive CF Supervisor Training program. This training consists of 11 modules that review the main policies and procedures contained within the H&S Manual.

### **The modules for field supervision are:**

1. Health and Safety Systems
2. Occupational Responsibilities
3. Orientation, Education and Training
4. Hazard Assessments
5. Workplace Inspections, and Audits
6. Emergency Planning, Crisis Management and Fire Prevention
7. Accident, Incident and Safety Opportunity Investigation
8. Public Safety, Security and Environmental Protection
9. Personal Protective Equipment
10. Safe Work Practices and Procedures
11. Heavy Equipment, Vehicles and Preventative Maintenance

In addition, hazard specific training modules are available to supplement any additional training requirements of supervisors and other CF personnel.

### **Additional Modules Available:**

- Confined Space
- WHMIS
- Transportation of Dangerous Goods (TDG)
- WAH (Working at Heights)
- Traffic Control

### **Additional Training:**

Additional CF H&S education programs shall include, but not be limited to:

- Employee orientation to H&S Program and to site specific regulations
- Discussion of industry accident and Safety Opportunities, compliance and hazard indicators
- Tool Box/ Safety Talks



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Orientation, Education, and Training**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

## **ORIENTATION, EDUCATION, AND TRAINING PROCEDURE**

- An active poster and signage campaign to help make safety visible in the workplace and to educate through visual information
- First Aid, WHMIS / Hazard Communications training
- Ongoing evaluation of training effectiveness and revision of training as necessary
- Additional specialty training as required
- Respect in the Workplace

**NOTE:** Orientation must be conducted for all employees and contractors. All employees and contractors must be orientated at least on a yearly basis.

However, based on the degree of hazard and/or client policy, orientation can be conducted more frequent.

### **Supervisors must ensure that:**

- Workers are assessed to ensure they are “fit for duty” given their potential essential job demands
- Workers have provided records of training through the orientation as applicable to their role or potential activity and that the Training Record H&S\_FORM\_005 has been completed
- Workers who are transferred from site to site receive site specific orientation
- Workers complete the Participant Evaluation Form H&S\_FORM\_006

### **PROCEDURE**

1. All employees/subcontractors must receive orientation using the Orientation Power Point or hard copy of the Power Point.
2. Employees/subcontractors will also complete the Orientation quiz.
3. The Supervisor will conduct the orientation
4. The Supervisor will fill in the Orientation Checklist H&S\_FORM\_007, and have all participants acknowledge what has been reviewed during orientation.
5. The Supervisor must give adequate answers to all questions.
6. The workers will complete the orientation and the quiz portion must be returned to the Supervisor who will attach it to the start form / site documentation after it has been signed and dated.
7. If the worker is identified as a new worker, complete the New Worker portion of the orientation.
8. Following orientation each employee will receive a sticker to attach to his/her hard hat.

### **SAFETY BOARDS**

Where appropriate, each project will display safety notice boards in a conspicuous location that will be visible or readily accessible to all workers on the project.

The purpose of the safety notice board is to display pertinent health and safety related information and material such as:

- Safety Policy
- Site Specific Emergency Plan (See Emergency Planning for more information)
- Health and Safety Committee Information



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Orientation, Education, and Training**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

## **ORIENTATION, EDUCATION, AND TRAINING PROCEDURE**

- First Aid Locations and names of qualified First Aiders
- PPE Policies
- CF and Site-Specific Rules
- Government Inspection Forms
- Fall Arrest Rescue Plans
- Legislatively required documentation

### **NEW WORKER AWARENESS PROGRAM**

CF and its management teams are committed to ensuring New Workers have additional support and mentorship to protect them and their fellow workers from harm.

### **SCOPE**

A NEW WORKER is a worker who has less than 6 months industry experience.

#### **Program Identifier**

A New Worker shall be visibly identified through the use of a different colored hardhat or sticker for the length of time they are in the program.

In the event a workplace or client has a similar program there may be alternative means of identification utilized.

Consult with the H&S department for details or requirements.

#### **Program**

Each new worker will be assigned a Supervisor who will act as a resource to help the new worker perform their work safely. The Supervisor will regularly evaluate the new worker for compliance with health, safety and environmental policies and procedures through informal observations and coaching. At no point will the New Worker be assigned a task requiring them to work alone.

Prior to the new worker performing any tasks, the Supervisor and New Worker will complete the New Worker Checklist. See H&S\_FORM\_008. It is the responsibility of the Supervisor to identify gaps in the knowledge and experience of the New Worker. The New Worker's job tasks are to be listed in the table and any work restrictions, based on gaps in the knowledge and experience of the New Worker, should be detailed. The completed New Worker Checklist is to be signed by the Supervisor and New Worker, and a copy provided to each. Copies of the checklist must be maintained for auditing purposes.

#### **Mentoring Process**

The Supervisor will act as the New Worker's mentor. The Supervisor will work closely with the New Worker and observe their actions and behaviors to ensure tasks are being completed safely. The Supervisor will immediately correct any unsafe or at-risk behaviors by intervening and providing coaching and instruction as necessary.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Orientation, Education, and Training**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

# **ORIENTATION, EDUCATION, AND TRAINING PROCEDURE**

All New Workers will be in the New Worker Program for 6 months unless the New Worker can demonstrate competency to their Supervisor before the 6-month period is complete. The Supervisor will evaluate the New Worker for Competency.

When the New Worker has been deemed competent by their Supervisor, they will be provided a standard CF hard hat.

## **RESPONSIBILITIES**

### **Supervisor**

- Ensure the New Worker receives and wears their different colored hard hat;
- Assume the role of a mentor for the New Worker;
- Provide New Worker with an orientation of the work areas, tasks, known and potential hazards and hazard controls that can affect the work of the New Worker;
- Lead by example. Be a role model for proper project planning, safe work practices, quality work, and good housekeeping;
- Instill a positive safety attitude in the New Worker by demonstrating correct work practices and procedures;
- Ensure all controls are evaluated and in place prior to New Worker starting work through CF Hazard Assessments processes (JSA, FLRA);
- Observe New Worker actions and behaviors to ensure tasks are being completed safely;
- Immediately correct any unsafe behavior by intervening and providing appropriate coaching;
- identify any site or task specific training that must be added to Minimum New Worker Training Requirements;
- Ensure Minimum New Worker Training Requirements are completed, understood and followed by New Worker;
- Commend New Worker on safe work behaviors and actions;
- Ensure the New Worker does not work alone and is readily accessible to communicate with;
- Ensure the New Worker Checklist is properly filled out, reviewed and competency evaluation is completed to identify any gaps in the skills and knowledge of the New Worker as well as any restricted activities;
- Ensure the New Worker receive copies of the New Worker Checklist;
- Ensure the original completed New Worker Checklist documentation is filed and maintained for auditing purposes.

### **New Worker**

- Wear different colored hard hat;
- Readily identify themselves as a New Worker in the New Worker Program;
- Do not complete any task that you are not approved or qualified to perform;
- Never work alone;
- Ensure you have readily accessible communication with your Supervisor;
- Ask questions if you are not sure about anything;
- Stop their task if anything occurs that was not considered in the planning process;
- Ensure Minimum New Worker Training Requirements are completed, understood and followed;
- Understand and follow:



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Orientation, Education, and Training**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### **ORIENTATION, EDUCATION, AND TRAINING PROCEDURE**

- Workers' Rights – which includes;
  - The right to know about workplace hazards;
  - The right to participate in health and safety;
  - The right to refuse unsafe work; and
  - The right to work in workplace free of violence and harassment.
- Worker Responsibilities – which includes;
  - Report for work fit for duty;
  - Comply with all health and safety rules and legislation for your workplace;
  - Contact your supervisor with health and safety questions;
  - Report all accidents/incidents/safety opportunities or unsafe behaviors to your supervisor immediately;
  - Cooperate in any return to work programs;
  - Wear all the personnel protective equipment (PPE) Provided;
  - Obey all hazard indicators, signage and instructions in the workplace;
  - Do not engage in any horseplay, prank or physical horseplay;
- Training and Instruction Requirements– which includes;
  - Use of Electronic Devices;
  - Hazard Awareness;
  - Disciplinary Process.

#### **Mandatory NEW WORKER Training Requirements**

- CF Orientation;
- WHMIS/ New Worker Awareness Orientation; and
- Site specific or task specific training if required.

#### **Notification**

When expressly required by client, prior to starting work, CF shall notify the client if New Workers are present in the workplace.

#### **Subcontractors**

When expressly required by client, CF's subcontractors will manage their subcontractors in alignment with this New Worker Program.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safety Meetings, Moments, and Communication**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

# **SAFETY MEETINGS, MOMENTS, AND COMMUNICATION**

## **PURPOSE**

CF believes that we cannot meet our health and safety objectives without effective communication. Tool Box/Safety Talks are an essential aspect of opening the lines of communications in the workplace and communicating health and safety related information pertinent to the wellbeing of all workplace parties. These informal discussions are an opportunity for all attendees to voice their concerns about site health and safety conditions.

These meetings are also an opportunity for the supervisor to seek co-operation in eliminating any safety concern and/or relay the cause of any injuries, Safety Opportunities or other safety issues that have occurred. The use of Safety Moments to begin all meetings is an important step in maintaining the focus of CF First Core Value of Safety First. Hazard Alerts are an important aspect of communicating lessons learned and are designed to ensure that this important information is shared with those can benefit from the information.

## **SCOPE**

### **Weekly Safety Meeting**

Weekly Safety Meetings must be conducted, and should be held, at the beginning of the first shift of each work week in an effort to ensure that all workers are focused and establish a commitment to work safely all week.

If any health & safety issue unique to your project arises and is not covered, please review it in your Tool Box/Safety Talk, and suggest it to the H&S Team for inclusion.

You can also refer to the Safe Work Practices, and Safe Work Procedures of this program for additional information and guidance. Consult with your H&S Team for further information regarding talks and topics.

### **Office Workplace**

Monthly Safety Talks are to be held with all CF office personnel. Also, to be reviewed at these meetings are any updates provided by the facilities Joint Health and Safety Committee, the findings of any incident investigations that may have occurred within the facility, any applicable Hazard Alerts issued by the H&S Team, or any other relevant information.

Attendance must be signed by each employee attending for each meeting. Any concerns raised by employees, are to be shared with the appropriate Management Personnel as soon as possible for resolution

### **Communicating an Effective Safety Talk**

In order to ensure that workers are engaged and participate in the toolbox talk, the following guidelines have been provided for assistance.

#### **Know and Understand the Material Being Delivered**

- Review the talk prior to communicating it to the workforce. This will help you to anticipate possible questions and prepare for answers.
- This will reduce the awkward feeling of reading a safety talk for the first time in front of employees.
- Be prepared to provide examples relating to your work environment. Workers tend to listen more attentively when they can relate to the experience on the job.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safety Meetings, Moments, and Communication**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3

### **SAFETY MEETINGS, MOMENTS, AND COMMUNICATION**

Ensure All Employees are Present and Accounted For

- Pay attention to possible side conversations. Be prepared to interrupt in order to set the tone.
- Employees receive no benefit showing up in the middle of a safety talk. Exercise your authority to ensure that employees are responsible for attending the talk on time.

Participation

- Engage employees by asking questions. If everyone is reluctant to speak, ask someone directly to answer the question.

Remember: Never tell an employee who was brave enough to answer your question that they are wrong. Doing so will turn others off. Instead, say something like “that is partly right or you’re on the right track”. Then follow it up with a leading question to make it easier.

Stay Calm

- If you don’t know the answer to a question, tell everyone that you will get back to them with an answer.
- Keep it simple and relate your personal experiences

**Identify bad habits you may have while delivering a safety talk.**

Examples includes:

- Do you sway back and forth?
- Do you tend to stare at one person the whole time?
- Do you look down at the ground the whole time?
- Are you too soft spoken for the employees to hear you?
- Are you too aggressive with your approach?


**Key points to remember**

- Relate the information towards field activities
- Ensure the message is clear
- Provide questions
- Be prepared for possible questions
- Provide examples
- Generate interaction amongst the
- Keep ensuring you have everyone’s attention
- Don’t be afraid to move around the room
- Take your time. Don’t rush through

**Daily JHA’s**

Daily JHA’s are done each day prior to commencing work activities. These talks are designed to:

- Review the task at hand
- Review any practices / procedures that are to be followed
- Review hazard assessments / analyses applicable to the work

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Safety Meetings, Moments, and Communication</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## SAFETY MEEETINGS, MOMENTS, AND COMMUNICATION

- Review / discuss any ongoing or immediate issues or concerns

Attendance of these talks is captured through the JHA document.

### **Hazard Alerts**

Hazard alerts are a communication tool designed to create awareness about safety issues with the appropriate corrective actions. These alerts are typically developed due to a unique or repetitive event that has the potential to occur in other workplaces.

All CF Hazard alerts will be developed and distributed through the H&S Team.

### **Safety Moments**

A safety moment can occur during any meeting, function or CF event. Prior to beginning any meeting, the chair or leader of the meeting is responsible to begin with a safety moment.

A safety moment is intended to focus the on a specific safety topic. This topic does not have to be related to specific construction activities but relevant to the time / place.

For example, in November a safety moment discussion could be the use of winter tires on personal or CF vehicles. Safety moments are an important part in creating and maintaining a high level of safety culture in all that we do.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Field and Office H&S Inspections**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

# **FIELD AND OFFICE H&S INSPECTIONS PROCEDURE**

## **PURPOSE**

CF will conduct documented workplace inspections for the purpose of identifying and correcting unsafe conditions and behaviour. The inspections will cover premises, job sites, buildings, temporary structures, excavations, tools, equipment, machinery, work methods, and practices. Inspection forms are to be used as a guideline. Specific sites may have unique situations and potential hazards that may not be covered by this list.

## **SCOPE**

Planned inspections will occur weekly on construction projects and monthly at offices. Supervisors, Joint Health & Safety Committee/Health & Safety Representatives and site H&S Advisors will be involved in workplace inspections. All Health & Safety Inspection reports must be reviewed during Tool Safety Box Talks, Joint Health & Safety Committee Meetings, etc. All completed Health & Safety Inspection reports will be evaluated and monitored by project management and the Health and Safety Committees (if applicable) and filed with site safety documentation posted in the workplace.

<b>Evaluation</b>	<b>Type of Workplace</b>	<b>Frequency</b>
Inspections	Construction sites	Weekly (Supervisor)  Monthly (H&S Rep)
	Industrial	Monthly
	Offices	Monthly

## **Follow-Up Actions to Health & Safety Inspections**

Where unsafe conditions, practices or procedures are noted:

- Take action immediately to rectify the condition if possible
- Place warning signs and barricades to keep workers away. Use verbal warnings if applicable
- Notify senior management to rectify conditions. Record conditions, actions taken, and the date on the inspection report form

When a worker is noted performing an unsafe act, advise as follows:

- Stop work
- Inform him/her of the unsafe situation
- Advise Supervisor
- Discuss the unsafe condition with Supervisor
- Advise on how to correct the unsafe condition
- Re-visit the area to ensure the safe act is being followed



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Field and Office H&S Inspections**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 2

## **FIELD AND OFFICE H&S INSPECTIONS PROCEDURE**

### **PROCEDURE**

1. Review previous inspection records and note any commonly reported hazards.
2. Familiarize yourself with the type of workplace and unique hazards.
3. Use your eyes, ears and other senses to identify actual or potential problems as you go about your inspection.  
Record the hazards on the H&S Inspection form.
4. When unsafe conditions are noted requiring immediate attention, correct the situation immediately.
5. Look for basic causes of sub-standard conditions, practices and procedures.
6. Complete an inspection form(s).
7. Review findings with a Sr. member of site management
8. Follow-up with correction actions and sign-off when corrective actions are complete
9. Review items at Joint Health & Safety Committee meetings, Workers Trade Committee meetings, "Tool-Box" Safety Talks.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

# **OCCUPATIONAL HEALTH**

## **PURPOSE**

CF is committed to providing a safe and healthy workplace for its employees. Identifying and controlling health hazards in the workplace are essential to maintain the health and safety of our employees.

## **SCOPE**

### **Worker Wellness**

CF recognizes the benefits of a healthy workforce and encourages and supports employees in achieving ownership for their physical, mental, and emotional well-being, resulting in improving overall health and wellness. CF will promote and support healthy worker wellness initiatives in, and outside of work activities.

### **Noise Standard**

All workers working in a noisy environment are required to use and wear hearing protection. Audiometric testing may be required based on the specific jurisdiction. If not certain please consult with the H&S Dept.

### **Procedure**

Noise in excessive amounts is a known health hazard.

- Exposure to excessive noise leads to permanent hearing loss in most cases.
- Employees exposed to noise levels greater than 85 dBA require adequate hearing protection for the hazard.

Noise exposure guideline for work related activities at the operator position are:

Radial Saw 10" Steel Blade	90-95
Cut-Off Saw 8" Steel Blade	85 -95
Hand Grinder 6" Stone	101-105
Jackhammer 80 Lb	96-100
Chipping Air Hammer	106-110
Metal Cut-Off Saw 12" Fibre	111-115
Arc Welding	96-100
Automatic Welding	96-100
Explosive Actuated Tools	Over 115
Sandblasting	96-100
Jumping Jack	111-115
Electric Drill	85 or under
Portable Grinder	90-95
Crawler Loader	101-105
Rubber Tire Loader	96-100
Compressor (250 CFM)	101-106
Compressor (250 CFM) Silenced	less than 85



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

Compressor (900 CFM)

106-110

Compressor (900 CFM) Silenced

less than 85

### **Points to Remember**

- Clean plugs or muffs to prevent ear infection
- Hearing protection makes it easier to converse in a noisy area
- Dry cotton batten is no protection against noise
- Wax impregnated cotton batten and ear plugs with metal inserts DO NOT WORK
- Muffs are more effective than plugs
- Plugs come loose if you talk or chew
- Hypo-allergenic ear plugs are available to those who require it

### **Hazardous Substances – Procedure Format Standard**

Managers shall request from the H&S Department a written procedure when the workforce may be exposed to a designated substance.

### **Procedure**

Note: Check with local jurisdictions on designated substances written procedures shall include:

1. Name of the designated substance.
2. Known health hazards.
3. Engineering controls, work practices, hygiene practices and facilities to control work exposure to the substance.
  - a. Note: If you are regularly working extended hours (more than 8hrs) for the day or shift contact the H&S Department ensure acceptable exposure limits are not exceeded.
4. Methods and procedures to monitor the concentration of the substance in workplace air.

### **Workers' Records**

Workers' records of exposure to the substance shall include:

1. Worker's name
2. Worker's date of birth
3. Worker's occupation
4. Respiratory equipment used
5. Monitoring results

Workers' records must be maintained by the employer and be available upon request by each worker's physician.

### **Procedure for Cleaning up and Disposal of Bio-Hazardous Waste Standard**

This procedure has been developed to protect employees when there has been exposure to bio-hazardous waste.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

### **Definition**

Bio-hazardous waste includes any infectious waste, or potentially infectious substance such as blood or other human waste. Blood and human waste have the potential to spread infectious diseases like Hepatitis B, C and HIV. Even though uninfected blood is relatively safe to clean, all blood spills should be treated as infected.

### **Procedure**

On a job site where bio-hazardous waste is discovered and could present a hazard to a worker this procedure may be followed.

### **Discovery of Bio-Hazardous Waste**

- Restrict Access - Restrict access to the area by using barrier tape or other physical separation. Only authorized staff or service providers will be allowed to enter the restricted area.
- Notification – Notify the supervisor, who will notify the H&S department to determine if the clean-up process will be completed internally, or if an external service provider is required.
- Clean-up and Disposal
- Personal Protective Equipment: Protection - An individual who cleans up blood and bodily fluid spills must wear personal protective equipment (PPE). Gloves, Disposable Tyvek Suit, masks or face shields are all acceptable and appropriate personal protective equipment to wear for exposure to blood and bodily fluids. A good practice is to double glove and wear an N-95 Mask.
- Barrier - Creating a barrier around the waste prevents it from spreading and contains it so that it can be cleaned. Barriers can be made of any absorbent material such as kitty litter, dirt, sand, sawdust or salt.
- Disinfect - Health hazards still exist even after the waste has been removed. Disinfecting the area is an important step. The supervisor will ensure the appropriate disinfecting product is used for the bio-hazardous waste. This will typically be bleach based cleaners. All cleaning tools should go through a disinfecting process or should be disposed of in appropriate biohazard waste containers or packaging.
- Broken Objects - Never pick up broken objects such as glass bottles by hand. It is strongly advisable for employees to use mechanical means to pick up all broken glassware. Use forceps, tongs, brooms and dustpans.
- Disposal - Never throw away broken glassware or sharp substances into general receptacles. Discard these items into "Sharps" containers or sealed, closable, puncture-resistant containers labeled with caution signs.

Ensure all disposable material is double bagged, and disposed of as per local requirements pertaining to bio-hazardous waste. Ensure everything has at least a double layer of containment, and is labeled with Biohazard Tag.

Inform Personnel at Waste Management what they are to receive so they can also take appropriate precautions. A good practice is for all cleaning areas to have a Biohazard Kit made available to workers.

### **A Biohazard kit may include:**

- 1 Labeled Sealed HD Bag (or 5 Gal bucket) with Seal to show it has not been opened.
- 20 4x4 Absorbent pads,
- 10 lb. Sack of kitty litter or other absorbent product.
- 3 Tyvek Suits





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

### **OCCUPATIONAL HEALTH**

- 3 prs. Goggles
- 1 box Nitrile or Latex Gloves
- 6 prs. Booties
- 1 Roll of Red Tape with Caution Tags
- Roll of Duct Tape
- 4 Laminated Biohazard Tags
- 1 Sharpie Marker
- 10 Garbage Bags,
- 6 N-95 Masks
- 3 Face Shields

Note: Kit contents should reflect the anticipated hazards based on site specific conditions.

#### **Bio-Hazardous Waste - Syringes Standard**

This procedure has been developed to assist employees when discarded syringes are discovered on the project.

#### **Procedure**

On a job, site where discarded syringe/needle is discovered in a work area and may pose a hazard to a worker this procedure will be followed.

1. Determine if the location of the discarded syringe will pose a hazard to a worker on the site.
2. If the syringe will not pose a hazard to a worker, it will be covered or guarded and the supervisor will be notified.
3. If the syringe may pose a hazard to a worker, the supervisor will be notified immediately.

#### **Supervisor**

Upon notification, the supervisor will:

1. Contact the owner of the work area for further instruction on the handling and disposal of bio hazardous waste
2. Notify CF H&S Department to advise of the existence of bio hazardous waste on the project.
3. Should the owner or owner's representative be unable to provide adequate procedures on the handling and disposal of the syringe, the supervisor or person designated by the supervisor will;
  - a. Refer to and follow the Sharps Procedure

Do not dispose of bio hazardous waste with regular garbage.

Should any worker suffer a wound involving bio hazardous waste, they should seek medical attention promptly. Advise H&S Department immediately.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Occupational Health

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## OCCUPATIONAL HEALTH

### Procedure for Handling and Disposal of Sharps

#### Objective

To reduce the risk of infection or injury by ensuring the safe disposal of sharps

#### Definition

Sharps are objects used for medical purposes that can penetrate the skin such as discarded needles or syringes with needles attached. These injuries can allow infections to enter the body. Infectious diseases such as Hepatitis B or C, HIV or Tetanus can enter this way.

#### Primary Risk Areas

Some work areas will have higher risk for discovery or exposure to sharps, for example; manholes, pipe clean outs, outfall areas when flushing sewer lines, removing pipe plugs, demolition/renovation (particularly hospitals/clinics etc) or clearing/surface preparation for excavation in out of the way locations/parks where litter from drug use may be a factor.

#### Supervisors

Should be able to assess and identify the potential for needle stick hazards in the workplace. Treat all needles as potentially contaminated or infectious.

#### Basic Prevention

- Workers should not put their hands in places they cannot see unless they are protected by puncture proof gloves. (see Glove Program)
- Do not work where there is insufficient light to see sharps or other hazards.
- When disposing of sharps, workers must use a portable sharps disposal kit: consisting of puncture resistant disposable gloves, tongs or pliers (made of material that is compatible with chlorine) and a labeled Sharps Container for the disposal of discarded needles).
- The container should be rigid walled and puncture resistant: A commercial Sharps Container is preferred. (see picture).
- Workers who could potentially be exposed should be trained on the safe disposal of needles or other sharps, inspection of the sharps container and clean up requirements.
- The potential for exposure to sharps should be identified on the JSA or FLRA card and reviewed with the crews prior to commencing work.
- All workers should be made aware of the location of the sharps response kit prior to commencing work.

#### Procedure for Disposing and Transportation of Sharps

- When disposing of sharps, bring the container to the needle – do not carry the needle over to the container.
- Use an appropriate implement (e.g. tongs or pliers) and wear disposable, puncture resistant gloves to handle sharps.
- Place the container for sharps disposal on a flat surface as close as possible to the needle. Open the lid of the container.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Occupational Health

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

### OCCUPATIONAL HEALTH

- Using the tongs, pick up the needle by the blunt end (plastic fitting). Holding the needle-sharp tip down and away from your body, put the needle in the container for sharps disposal. If there is more than one needle, pick them up one at a time.
- Close the container securely.
- Remove gloves by peeling them back from the top so they are inside out, then dispose.
- Wash hands with soap and water or if not available use hand sanitizer with 60% alcohol or better.

#### Pre-Use Checks, Transportation and Disposal

Before using a Sharps container – ensure that the container

- Is not punctured
- Is not filled above the “full” line. DO NOT overfill.
- Is not leaking or cracked
- Closable lid is in good condition
- Once the Sharps container is full, or when deemed necessary, the securely closed container shall be disposed of by taking it to a hospital, pharmacy or special bio- waste collection site that disposes of the used containers.
- While in transport the sharps container must be securely stored away where there is no danger of it being damaged or dislodging in transport.

#### Response in the Event of Injury / Exposure

- Any employee who receives an injury from a needle or other sharp should be treated using first aid measures.

Note: Any needle stick injury should be allowed to bleed freely.

- The injured worker should seek medical attention directly.
- All needle stick injuries must be reported immediately to H&S Department and subsequently to the appropriate agency as required (e.g. Ontario – WSIB).

#### Sharps Containers





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Occupational Health

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## OCCUPATIONAL HEALTH

### Sharps Response Kit - Equipment Needed

Puncture resistant disposable gloves (always have several pairs available), Commercial Sharps Container, Tongs, Bleach, Hand Sanitizer with minimum 60% alcohol.

### Cleanup Procedures

All tongs or pliers should be thoroughly washed with a solution of 9 parts water one part Chlorine (Bleach), rinsed in clean water and stored in a clean dry container.

### Hazardous Substances

#### Standard

Managers shall be aware of the existence of hazardous substances in the workplace and shall ensure compliance with pertinent regulations.

#### Procedure

##### Definition of Hazardous Substances

Hazardous substances are defined biological, chemical, or physical agents in the workplace known to have adverse effects on human health and safety. These substances have legal status and are attached to legal exposure limits.

At date of issue, the following substances are legally designated as "controlled":

- Acrylonitrile
- Asbestos
- Benzene
- Coke Oven Emissions
- Isocyanates
- Lead
- Mercury
- Silica
- Vinyl Chloride
- Asbestos on construction projects and repair operations

Workers may be exposed to other hazardous substances (physical, chemical and biological). Workers and Supervisors should take appropriate measures to reduce, substitute, control or eliminate these hazards. Examples of such hazardous substances are formaldehyde, cadmium, chromium, coal tar, nickel, styrene, cold, heat, and noise. Exposure means: inhaled, ingested, absorbed, injected. Contact the H&S Department for assistance.

### PCBs – General Information Standard

Workers involved in the handling of PCBs shall be familiar with their characteristics and the necessary safety precautions and training.

#### Procedure

- PCB means polychlorinated biphenyls, manmade chemicals manufactured on a large scale from 1929 until 1977.
- PCBs are very stable, non-corrosive, relatively non-flammable, and insoluble in water and have low vapour pressures.
- PCBs are excellent in insulating and thermal properties.
- Common past uses:



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

### **OCCUPATIONAL HEALTH**

- Carbonless copying paper
- Heat exchange fluids
- Hydraulic fluids
- In electrical transformers and capacitors
- "Askarel" is a generic term for PCBs used in electrical insulating liquids. Under arcing conditions, askarel produces a non-combustible hydrogen chloride gas with lesser amounts of combustible gases. Hydrogen chloride gas may threaten life even during short – term exposure.
- Identification of PCBs in Capacitors:
- Practically ALL liquid - dielectric AC power capacitors manufactured between 1930 and 1977 contain PCBs
- PCB capacitors manufactured after 1978 are often marked "No PCBs"
- Capacitors containing WEMCOL, FARADOL 100, DIELEKTRO II, or DPO do not contain PCBs; assume that all others DO contain PCBs
- Capacitors are usually hermetically sealed
- Common Brand Names for PCBs:

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Apirolio	Elemex	Phenochlor
Aroclor	Eucarel	Pydraul HY
Asbestos	Fenclor	Pyralene
Chlophen	Hyvol	Pyranol
Chlorextol	Ior	Pyroclor
Chlorinol	Inerteen	Saf-T-Kuhl
Diaclor	Kanechlor	Santotherm FR
DK (decachlorodiaphenyl)	Montar	Sovol
Dykanol	No-flamol	Therminol FR HT

- Health Effects of PCBs:
  - Enter human tissue by: inhalation, absorption or ingestion
  - Everyone is exposed to PCBs through the food chain
  - There is no evidence that low levels of exposure to PCBs is harmful to health
  - Workplace exposure to PCBs has been virtually eliminated
  - Fires involving PCBs may produce furans and dioxins which are toxic
  - Brief exposures to small amounts of PCBs are not a serious health concern
  - It is not known whether PCBs are carcinogens (the scientific community is divided on the issue).
- Identification of PCBs in Transformers:
  - Any transformer that was manufactured in North America WITH a conservator tank was NOT designed to use PCBs and probably contains mineral oil
  - A transformer's nameplate, attached to the outside of the transformer casing, which has the designation O, ONS, ONAN, ONWF or any label beginning with O, is filled with mineral oil
  - A transformer's nameplate which has the designation beginning with L, such as LNaN, LNAF, and LNWF etc. is filled with non-flammable or flame retardant liquid. MOST of these L transformers, manufactured before 1979, are PCB transformers



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

### **OCCUPATIONAL HEALTH**

- Environment Canada has developed a voluntary labeling system for PCB containers. These labels resemble a WHMIS / Hazard Communication label and have PCB in bold letters.
- Hydrogen chloride gas may threaten life even during short-term exposure.

#### **PCBs – Personal Protective Equipment Standard**

All workers involved in the handling of PCBs shall wear the prescribed personal protective equipment.

##### **Procedure**

The following precautions are mandatory when handling PCBs:

- Gloves (any of these):
  - Butyl Rubber
  - Neoprene
  - Nitrile Rubber
  - Polyvinyl Alcohol (PVA)
  - Viton
  - Saranex
  - Teflon

##### **NEVER work with bare hands when handling PCBs.**

- If temperature exceeds 55°C (131°F) and there is the risk of vapour escaping into the air, use self-contained breathing apparatus (SCBA) or supplied air
- respirators.
- If temperature does not exceed 55°C (131°F) and there is no risk of inhaling vapours (such as with hermetically sealed capacitors) no respiratory apparatus is required.
- If temperature does not exceed 55°C (131°F) and there is the risk of vapours escaping into the air (such as with transformers, tanks etc.) use full-face mask with organic vapour canisters.
- When handling PCBs, do not smoke, eat or drink before completely washing your hands and face.
- Dispose of protective equipment by placing it in the same container as the PCB waste when operation is completed.

##### **DO NOT ATTEMPT TO CLEAN PROTECTIVE EQUIPMENT FOR REUSE.**

- If trichlorobenzene (a solvent) is present in the PCB apparatus, use a full-face mask with organic vapour canisters.
- If the possibility of PCB contact with body parts exists, wear coveralls composed of one of the materials listed under gloves. Rubber or PVA shoes or boot covers are recommended.
- One Class C 10 lb CO2 fire extinguisher shall be located within 3 m (10') of the work area when PCB facilities are being handled.

#### **PCBs – Waste Storage Standard**

Various legislative publications such as, "Manual for the Management of Wastes Containing Polychlorinated Biphenyls (PCBs)" will be the reference documents for the acceptable means of PCB waste storage.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

# **OCCUPATIONAL HEALTH**

## **Procedure**

- The responsibility for PCB removal and storage is the owner/manager of the facility.
- CF is not authorized to transport PCB waste on public property or roadways.
- CF is not authorized to attempt to destroy PCB waste.
- The responsibility for the safe storage of PCB waste is the responsibility of the owner.

## **Lead Standard**

The supervisor in consultation with the H&S Department will ensure that all necessary measures and procedures are taken to prevent worker exposure to Lead.

## **Routes of Entry**

Lead may affect the health of workers if it is in a form that may be inhaled (i.e. airborne particles) or ingested. Shortly after lead is inhaled or ingested, it can enter the bloodstream and travel to soft tissues (such as the liver, kidneys, lungs, brain, spleen, muscles, and heart). After several weeks, most of the lead moves into your bones and teeth and can be stored there for a long time.

Early signs of lead poisoning includes:

- Tiredness
- Irritability
- Muscle and joint pain
- Headaches
- Stomach aches and cramps

Harmful effects can follow a high exposure over a short period of time (acute poisoning), or long-term exposure to lower doses (chronic poisoning).

Workers that are exposed to lead may require additional health assessments and surveillance as per the jurisdiction. Consult with the H&S Department for specific programs and obligations.

## **Workplace Exposure and Monitoring**

Work activities involving lead will be designed to ensure workers are not exposed beyond the occupational exposure limits for the jurisdiction.

Clients, or property owners, are obligated to inform CF representatives of any existing hazardous materials, including lead in the workplace. This information should provide the details as to the amount and locations of lead in the workplace. This information will be required to determine worksite specific procedures for the handling, disturbance or removal of the lead or lead containing products.

In the event a worker suspects an unidentified product to contain lead, protect the area and contact your supervisor immediately.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

Where work involving lead or lead contain products occurs, a monitoring process such as air sampling or particulate measurement will be required to monitor exposure levels. The specific monitoring process will be workplace specific.

### **Symptoms of Acute Lead Poisoning**

Includes a metallic taste in the mouth and gastrointestinal symptoms such as vomiting, abdominal cramps, constipation, and diarrhea.

### **Symptoms of Chronic Lead Poisoning**

Are more difficult to recognize because they are similar to many common complaints. However, severe chronic poisoning can lead to more characteristic symptoms, such as a blue line on the gums, wrist drop (the inability to hold the hand extended), severe abdominal pain and pallor.

Lead can also cause serious damage to a number of systems in the body including the blood, kidneys, gastro-intestinal, nervous and reproductive systems

General measures and procedures are suggested for all work with lead:

- Washing facilities consisting of a wash basin, water, soap and towels should be provided and workers should use these washing facilities before eating, drinking, smoking or leaving the project
- Workers should not eat, drink, chew gum or smoke in a work area
- Dust and waste should be cleaned up at least daily and placed in a container that is:
  - Dust tight
  - Identified as containing lead waste
  - Cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before being removed from the work area
  - Removed from the workplace frequently and at regular intervals
- The work area should be inspected at least daily to ensure that the work area is clean
- Compressed air or dry sweeping should not be used to clean up any lead- containing dust or waste from a work area or from clothing

### **Dust Control Measures**

Enclosed Work Areas:

- The enclosure should be inspected for defects by a competent person;
- Defects should be repaired before any work that would generate lead-containing dust is carried out within the enclosure.
- Air exhausted from an enclosed work area should pass through a dust collector

### **Burning, Welding or High Temperature Cutting of a Material with a Lead-Containing Coating:**

- Local exhaust ventilation should be used where there is burning, welding or high temperature cutting of a material that has a lead-containing coating
  - The air velocity at any point in front of or at the opening of the ventilation hood should be sufficient to overcome opposing air currents and capture the contaminated air by causing it to flow into the hood.
  - The air velocity at the source of the lead dust, fumes or mist should be at least 0.5 meters per second.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

Air discharged from the local ventilation system should pass through a HEPA filter and be routed out of the workplace in a way that will prevent the return of the contaminants to the workplace.

**Note:** If local ventilation is not practicable, an appropriate respirator should be used. Please consult your H&S Department.

### **Removal of Lead-Containing Material with Power Tools**

Where lead-containing material is being removed with power tools, the generation of airborne dust should be controlled by:

- An effective general or local exhaust ventilation system if the operation is carried on indoors
- If a general or local exhaust ventilation system is not practical, an appropriate respirator should be used.

### **Personal Protective Equipment**

Please contact your H&S Department for assistance and selection of the appropriate PPE.

### **Silica**

Silica can be found in many forms on a construction project. In aggregates, concrete, cement products and other materials.

### **Standard**

The supervisor in consultation with the H&S Dept. will ensure that all necessary measures and procedures are taken to prevent worker exposure to Silica.

### **Health Effects of Silica Exposure**

Crystalline silica may be harmful following high exposure levels received over a period, ranging from a few weeks to years or after long-term exposures to lower levels.

The prolonged inhalation of air born dust containing crystalline silica may result in silicosis, a disease characterized by progressive fibrosis of the lungs. Silicosis is marked by shortness of breath and impaired lung function.

Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans. In order for silica to be a hazard, silica-containing dust particles that are small enough to be inhaled (i.e. air born,) must get into the air.

Workers that are exposed to silica beyond the occupational exposure limits may require additional health assessments and surveillance as per the jurisdiction. Consult with the H&S Department for specific programs and obligations.

### **Dust Control Measures**

- The generation of airborne silica-containing dust should be controlled with a mechanical ventilation system, wetting, or the use of a dust collection system.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

### **OCCUPATIONAL HEALTH**

- If it is not practical to use mechanical ventilation, respiratory protections may be used. Please consult your health and safety department for guidance and assistance
- If compressed air is being used to remove silica-containing dust outdoors, workers within 25 meters of the work area who may be exposed to the dust must either be removed from the path of the dust cloud or provided with respirators

#### **Indoor Operations**

- If sandblasting is being conducted indoors and persons other than those doing the sandblasting may be exposed to silica-containing dust, the sandblasting area should be separated from the rest of the project by an enclosure that will confine the dust within the sandblasting area.
- Appropriate signage identifying the silica hazard should be posted.

#### **Outdoor Operations**

- If sandblasting is being conducted outdoors and persons other than those doing the sandblasting may be exposed to silica-containing dust, the work area should be identified by ropes or barriers located at least 25 meters from the sandblasting area, to prevent entry by workers not directly involved in the operation.
- If it is not possible to locate the ropes or barriers at least 25 meters from the sandblasting operation other control measures such as barricades and enclosures should be implemented.
- This will ensure that the sandblasting area is separated from the rest of the project by an enclosure that will confine the dust within the sandblasting area.

#### **Enclosures**

The following requirements should be met:

- Entry ways in the enclosure should be equipped with air locks, overlapping door tarps or doors;
- All openings and joints in the enclosure should be completely sealed;
- The air pressure within the enclosure should be negative relative to the outside;
- The air velocity within the enclosure shall be appropriate and pass each work;
- The escape of abrasive and debris from the enclosure should be controlled at air make-up points by the use of baffles, louvers, flap-seals and filters. If the enclosure is located outdoors, these additional requirements should be met:
  - The enclosure should be made of windproof materials that are impermeable to dust;
  - The enclosure should be supported by a structure that prevents more than minor movement of the enclosure.

#### **Dust Control Measures**

If an enclosure is used to protect other workers on the project from silica exposure, air exhausted from the enclosure should pass through a dust collector that can remove the particulate matter from the air at the volume and velocity at which it is moving.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

### **Respirators**

A worker operating an electric, pneumatic or gas powered cutting device in dry mortar, concrete or similar material or sandblasting will wear approved respiratory protection. For respirator selection, care, use and fit testing please consult with your H&S Department.

### **Clean-up**

When an indoor sandblasting operation is completed, dust and waste should be cleaned up and removed by vacuuming with an HEPA-filter-equipped vacuum and wet sweeping or wet shoveling.

### **Personal Protective Equipment Code of Practice for Silica Dust**

All employed will wear appropriate respiratory protection when exposed to airborne hazards that are determined to exist at the crusher plant site, in particular but not limited to, silica dust. The optimum functional protection for silica dust has been determined to be 3m 1620 or 8210-8511.

- Proper training in use and maintenance of the equipment must be received by employees.
- Masks must be fitted for proper wearing and employees must be trained in how to fit and wear appropriate mask.
- Employees will be tested to ascertain baseline exposure to each particular airborne hazard. Special consideration will be given to any employee with preexisting sensitivity, disease, allergies or medical condition. Subsequent on- going testing will be done to ascertain high risk cases for health degradation.
- Discard filter masks after shift usage and start shift with a clean mask.
- All employees that are required to work in areas considered high dust areas or the work that is required will increase the amount if dusts are required to wear dust masks.
- Management and workers will conduct their work so as to minimize the amount of exposure to it in the following but not limited to manners:
  - Setup equipment to minimize dust carried by prevailing winds to the workers if possible.
  - Shorten the amount of time to do a task in a dust area as much as possible.
  - Try to do cleanup on plant shut down times.
  - Clean equipment and power unites towers as much as possible to remove dust (wear mask to do this) use cab filters.
  - Leave dust covered work clothes at work to minimize taking it home.
  - Company supplied clothes that are contaminated should stay at work and be laundered from there.
- Use water sprayed systems and other methods to cut down on dust as much as possible.
- Maintain belt flashing and screens and conveyors as much as possible to eliminate sand and dust build-up around the equipment from spillage and debris.
- Shorten the drop distance of material coming off conveyors and screen decks as much as possible so transfer points do not contribute to dust.
- Close doors on power/tower shacks and make sure doors and windows seal properly to keep interiors dust free.
- Use air conditioning where possible to keep doors and windows sealed.
- Rotate workers on jobs to minimize exposure.
- Post signs indicating silica dust is present in the high dust areas considered restricted and correct Personal Protective Equipment is required?



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

### **Molds**

#### **Standard**

All employees should be aware of Molds and the effects of exposure.

Molds are microorganisms that produce thousands of tiny particles called spores as part of their reproductive cycle.

Mold colonies are usually visible as colourful, woolly growths. They can be virtually any colour. When disturbed by air movement or handling, molds release their spores.

- Molds can be found almost anywhere.
- Molds usually originate from outside sources such as soil and vegetation.
- Molds prefer dark, moist environments and can grow at room temperature on various construction materials including wallpaper, particleboard, ceiling tiles, drywall, and plywood.

#### **Exposure**

- Construction workers can be exposed to toxic spores when working on buildings with some sort of water damage from flooding, plumbing leaks, or leaks in the structure itself.
- In buildings with water damage or ongoing moisture problems, certain types of molds may reproduce to higher than normal levels and potentially cause health effects. *Stachybotrys chartarum* is of particular concern because it can be found in large colonies and can cause adverse health effects.
- *Stachybotrys chartarum* appears as small black patches and grows well on water-soaked cellulose material such as wallpaper, ceiling tiles, drywall, and insulation containing paper.
- In addition, construction personnel working in water-damaged buildings may be exposed to other types of toxic molds such as *Fusarium*, *Aspergillus*, and *Penicillium*.

#### **Contact and Symptoms**

- Not all exposed workers will develop symptoms.
- Once released, toxic spores known as mycotoxins must come into contact with the skin or be inhaled before symptoms can develop.
- Exposure to toxic Molds may irritate skin, eyes, nose, and throat, resulting in allergy-like symptoms such as difficulty in breathing, runny nose, and watery eyes.
- Other symptoms have been reported such as fatigue and headache and asthmatic attacks.
- Toxic Molds must be removed. However, special control measures must first be implemented to prevent worker exposure and the spread of mold from one area to another.
- Personal Protective Equipment must be used as directed. Consult the H&S Department.

Note: If mold is discovered in a workplace the control and removal lies with the owner. Contact the H&S Department for further assistance.

### **Animal Droppings - Histoplasmosis**

#### **Standard**

Use the following procedures for excavation in ground soils suspected of containing droppings from chickens, pigeons, and bats. Inhaling dust from droppings can cause serious lung infection called histoplasmosis.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

### **Material & Equipment**

- Half mask respirator
- High efficiency particulate aerosol (H.E.P.A.) filters
- Disposable coveralls
- Disposable work gloves
- Disposable boot covers
- Duct tape
- Water

### **Procedure**

1. Establish a work area protection zone.
2. In areas not suspected of containing the droppings of chicken's etc., normal excavation methods should be used.
3. Where work is to be performed in an area suspected of containing the droppings of chicken's etc., the following personal protective equipment must be worn:
  - a. Hard hat
  - b. Safety boots
  - c. Eye protection
  - d. Disposable coveralls
  - e. Disposable boot covers
  - f. Half mask respirator with H.E.P.A. filters,
  - g. Disposable work gloves.
4. After putting on the personal protective equipment, and before commencing work, test the respirator for proper fit and seal the pant & sleeve cuffs of coveralls with duct tape.
5. When possible, moisten the ground with water prior to excavation.
6. Upon completion of the work, bag the coveralls, boot covers, gloves, and H.E.P.A. filters and discard.
7. Wash respirator and place it in a sealed container for future use.
8. Rinse hand tools with water prior to storage.

**Note:** Use of compressed air tools should be limited to reduce the risk of airborne particles including histoplasmosis spores which are inhaled as dust into the lungs.

**Note:** If mold is discovered in a workplace the control and removal lies with the owner. Contact the H&S Department for further assistance.

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**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

### **OCCUPATIONAL HEALTH**

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#### **Man-Made Vitreous Fibers (MMVF)**

Man-made vitreous fibers (MMVF) or synthetic vitreous fibers (SVFs) are a class of insulating materials. They are made primarily from glass, rock, slag or clay.

#### **Standard**

All workers handling or installing Man-Made Vitreous Fibers must take all reasonable precautions to ensure that they are not being exposed. Wearing personal protective clothing and equipment will prevent such exposures. The Three General Categories

Fiber Glass:

- Glass Wool,
- Continuous Filament



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

Mineral Wool:

- Rock Wool,
- Slag Wool.

Re-factory Ceramic Fibers:

- Pure Oxides
- Kaolin.

### **Where Used**

Fiberglass

- Fiberglass is produced in two basic forms, wool fibers and textile fibers.
- Thermal insulation,
- Noise-control (acoustic) products,
- Linings for air-handling ducts,
- Pipe insulation,
- Air filters,
- Homes
- Refrigerators

### **Mineral Wool**

- Mineral wool includes rock or stone wool and slag wool.
- Materials are sprayed with lubricating oils and binders to reduce dustiness (mineral wool generally contains a very high ratio of nonfibrous particles, or shot) and fiber breakage.
- Mineral wool applications are very similar to those of glass wool-thermal insulation, including fire protection, and acoustic insulation.

### **Refractory Ceramic Fiber**

- Refractory ceramic fiber (RCF) is formulated to help control heat flow in high-temperature, industrial situations.
- Kaolin clay based products, for which the clay is obtained by mining.
- Blends of alumina, silica, and refractory oxides (e.g. chromous and zirconia oxides)
- High-purity products that are a blend of purified alumina and silica and other materials.
- Used in high-temperature, industrial environments.
- Blankets are used as furnace and kiln liners
- Backup insulation to refractory brick, as soaking pit covers
- Annealing welds
- Loose RCF is used as a filler in packing voids and in expansion joints

### **Health Effects**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Occupational Health

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## OCCUPATIONAL HEALTH

### Skin Irritation

SVFs may irritate the skin. This irritation is a mechanical reaction to sharp, broken ends of fibers that rub or become embedded in the outer layer of the skin and does not appear to be an allergic response. Typically, irritation does not persist and can be relieved by washing exposed skin gently with warm water and mild soap.

### Upper Respiratory Tract Irritation

If large amounts of airborne fine fiber are released and improper work practices permit inhalation of the fibers, some workers may experience temporary upper respiratory irritation.

### Preventative Exposure Measures

- Whenever possible, SVF products should be engineered and designed to limit their release of airborne dust.
- Manufacturing processes and engineering controls should be used to minimize airborne dust in the work environment.
- Approved respiratory protection and clothing that covers the skin as much as possible when handling or installing SVFs.
- Refer to MSDS for additional information.

### Ergonomics (Workplace)

#### Standard

Ergonomics is the study of the interaction between work and people. Workers in many jobs are at risk for musculoskeletal disorders due to hazards or risk factors in the workplace. An MSD (Musculoskeletal Disorder) is an injury or disorder that occurs over time as a result of repetitive, forceful or awkward body movements or static or awkward postures. These activities can over time result in injury to the muscles and joints.

#### Musculoskeletal Disorders

Musculoskeletal Disorder (MSD) is also known as Cumulative Trauma Disorder (CTD) and Repetitive Stress Injury (RSI). An MSD can damage muscles, tendons, and nerves of the neck, shoulder, forearm, hands, legs and back. Damage can also occur in other parts of the body. An MSD can cause pain, weakness, numbness or difficulty in grasping objects. Examples includes Back Pain, Carpal Tunnel Syndrome, Bursitis, Trigger Finger, Tendonitis and Rotator Cuff Disorder.

#### Symptoms of an MSD

- Pain
- Swelling, inflammation
- Numbness or tingling sensation
- Decreased movement of a joint
- Stiffness of body part
- Symptoms worsen with time

#### Risk Factors of an MSD

Awkward or Static Posture (Prolonged or Frequent)





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Occupational Health

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## OCCUPATIONAL HEALTH

An awkward body posture is any change from a neutral position e.g. bending, stooping, twisting, reaching above the shoulders, reaching behind and bending the wrist forward, backward or side to side.

### **Repetition**

Performing the same motion for too often, too quickly or for too long a period causes stress to joints and muscles. This type of work results in muscle and joint fatigue and can result in injury.

### **Contact Stress**

If the force required for completing the work overloads the muscles, joints and other soft tissues it can cause injury. Excessive force can be created by; long reaches, lifting heavy weights, improper gripping and excessive contact such as carrying a heavy coil of cable over one shoulder.

### **Local or Hand/Arm Vibration**

Risk depends on level and frequency of vibration, length of exposure and whether awkward postures are involved.

### **Cold Temperatures**

Flexibility is decreased, muscles do not work as efficiently. There is decreased blood flow to the muscles and joints.

### **Hot Work Environments**

Can lead to muscle fatigue due to dehydration and errors in how work is performed.

### **Work Organization and Work Methods**

Refers to work pacing, worker rotation and scheduling, potential complacency or monotony of tasks, physical and mental demands of the task, level of training and supervision.

### **Implementing Controls**

#### **General Principles**

1. Use handling equipment when possible
2. Avoid lifting loads on or near the floor
3. Minimize working near the floor level
4. Move small weights often rather than heavy weights once
5. Regularly stretch muscles
6. Rotate workers to share monotonous, demanding or repetitive tasks

#### **Specific Controls**

##### **Hand Tools**

- Choose tools with vibration reducing features
- Choose tools that are lighter and reduce hand torque and kickback
- Make sure tools are balanced and do not require extra muscular effort
- Choose tools with triggers that allow for multiple fingers
- Inspect and maintain tools regularly. Replace old worn tools.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

### **Pushing and Pulling**

- Make sure handles on carts are adjustable to allow for different worker heights
- Use larger wheels on carts to reduce push or pull forces
- Design work to avoid having to push or pull material up slopes or in crowded spaces
- Push rather than pull carts

### **Heavy, Frequent and Awkward Lifting**

- Use mechanical aids to lift, lower objects/material
- Keep loads close to the body
- Split large loads into smaller loads
- Plan lifting activities including clearing paths of obstacles and paying attention to good housekeeping

### **Fixed or Awkward Postures**

- Adjust height of adjustable work stations
- Use anti-fatigue matting
- Place materials at suitable heights and bring closer to the actual work activity area to avoid long reaches
- When working in cramped positions, allow time to stretch and change position.
- If possible use devices for overhead work.

### **Repetition**

- Implement job rotation
- increase variety of activities
- includes flexibility and encourage micro breaks

### **Contact Stress**

- Change or modify equipment
- Use PPE i.e. knee pads, padded gloves
- Change or modify work practice or work space to reduce contact with sharp or hard edges, surfaces.

### **Cold Temperatures**

- Ensure workers wear appropriate outdoor clothing including well fitting, insulated gloves
- Store tools in warm area if possible while not using
- Provide breaks in warm areas
- Provide portable heating if practical
- Encourage workers to stay hydrated

### **Warm Temperatures**

- Rotate workers to allow for cooling breaks
- Encourage workers to stay hydrated

### **Work Organization and Work Methods**

- Allow rest/recovery from demanding/repetitive tasks



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

## **OCCUPATIONAL HEALTH**

- Provide work variability
- Ensure work pace and demands are appropriate
- Provide training on MSDs, hazards and controls

### **Ergonomics for the Office Environment**

Ergonomics can be defined as fitting the job to the worker. All workers are not the same size and everyone has different tolerances and limits. Ergonomics is applied to the design of workstations, work processes, equipment, and tools to fit the worker in order to minimize risk factors that may lead to musculoskeletal injury.

#### **Proper Workplace and Workstation Design**

A properly designed workplace helps the worker maintain good body posture and minimizes forces on the body. The workstation should be appropriate for the job and the fit the worker's body size and shape.

### **Standing at Work**

Generally the work surface should be at elbow height with the work placed in front of the worker so there is no need to twist or reach. Use of a footrail or footrest allows the worker to shift some of their body weight and rest muscles and joints. Anti-fatigue mats may provide cushioning for hard floors.

### **Sitting at Work**

Chair, desk, computer, or a workbench all affects the worker's body position. The chair should be adjustable so that feet rest comfortably on the floor or on a footrest. Arrange workstation to allow proper back support. (I.e. position keyboard or monitor closer to user). Arm rests should be adjusted to support the forearms and prevent hunching.

#### **"Ideal" Sitting Posture for Computer Work:**

- Wrists: Naturally straight position; not bent up, down, or from side to side
- Elbows: Bent between 90° and 100° (right angle), close to your body and supported if possible
- Shoulders: Relaxed (not slouched or raised)
- Neck: Facing forward and not looking up, down, or to either side
- Hips: Bent around 90° with your thighs roughly parallel to the floor
- Low Back: Supported to maintain its natural curve
- Knees: Bent at about 90° with enough space between the back of your knees and the chair to place your fist
- Feet: Placed flat on the floor or supported by a footrest.

### **Preventing MSD's in the Office**

- Workers should stand up and get away from the desk and/or computer regularly throughout the day.
- Muscles work best when the body joints are in "neutral" positions. Workers should not remain in any one position (seated or otherwise) for long periods of time.
- Getting up and walking around, even short distances, throughout the day helps to reduce stress by improving circulation in the muscles and the spine.
- Micro-breaks are useful to allow muscles and joints a rest. Other daily tasks, such as filing and delivering, can be done while taking a break away from the computer.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

# **OCCUPATIONAL HEALTH**

## **Chair Position**

- Adjust the backrest so the low back support contacts the curve in the back and gives support in that area.
- Adjust armrests so that elbows can rest comfortably on the rests, and shoulders are level and relaxed
- Lower the seat pan so feet rest comfortably on the floor.
- Chair height should be adjusted to allow for typing comfortably with “ideal” wrist and arm positions. A footrest can be used if feet do not rest flat on the floor after chair adjustment.

## **Keyboard and Mouse**

- Keyboard and mouse should be slightly below elbow level and close to the body. The mouse should be right beside the keyboard, and in front of the mousing hand.
- To reduce stress on the hand, try to use the mouse with the opposite hand. This reduces the stress placed on one arm and frees the dominant hand to perform other tasks.
- Try moving the arm and shoulder rather than only the hand when mousing.

## **Monitor and Document Holder**

- Document holders help keep papers vertical or angled so the neck does not have to bend to read them.
- The document holder should be the same distance from the eyes as the computer screen.
- The monitor and keyboard should be directly in front of the worker.
- The top of the monitor and document holder should be around eye level when sitting comfortably.
- The monitor should be about arm's length away at a comfortable reading distance.
- The monitor should be angled slightly up toward the eyes. Angling the monitor up too high can increase glare.
- Eyesight naturally falls about 20° down from the horizontal, the top of the screen should be placed around eye level. Line of sight should naturally fall to the middle of the screen.
- If the worker wears bifocals or trifocals, it's especially important to properly adjust monitor height. Tilting the head back to view the screen through the lower portion of the glasses could lead to muscle fatigue in the neck and back. Instead, try lowering the monitor.

## **Back Care Standard**

Construction work puts physical stress on the body. About half of the back injuries are attributed to lifting excessive weight or lifting incorrectly and the rest are the result of slips, trips and falls. Most back injuries are the result of everyday wear and tear rather a single traumatic event.

## **Procedure**

Exercise Program to protect your spine, the muscle supporting your back must be both strong and flexible. A pre-work stretching program is recommended. Warming up prepares your body for the physical work ahead and helps minimize the risk of injury.

The three essentials are Warm-up, Workout, and Cool-Down.

Remember – Check with your doctor before starting any exercise program.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Occupational Health

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

### OCCUPATIONAL HEALTH

- Workplace Posture
  - Maintaining a proper posture is the most critical part of good back care. Using our muscular system to control posture minimizes the effects of everyday wear and tear on our spine. Any position held too long is not good for your back. Aches and pains from prolonged working postures are our body's way of warning you to change position. If these warnings are continuously ignored, you will be vulnerable to low back injury.
- Lifting
  - A weight that is too heavy, lifting in awkward position, twisting your body while lifting, or doing excessively heavy work are all common causes of low back problems. When lifting plan your move, size up the load and make sure your path is clear or get help if needed or use other material handling equipment if possible.
  - Material Handling Equipment
  - Different types of equipment have been designed and manufactured to lift and move loads of various shapes, sizes, and weights. This equipment can not only save time and labor – it can save your back.
  - Hoisting or Moving Heavy Loads
  - Special equipment is often required to hoist or move heavy loads manually. Devices from simple levers and rollers to more complicated chain hoists and derricks can handle loads that would otherwise be difficult to move. The mechanical advantage afforded by this equipment reduces the manual effort involved as well the risk of back injury.

#### Hand-Arm-Vibration Standard

All employees exposed to tools that vibrate need to be aware of Hand-Arm-Vibration Syndrome (HAVS) and the effects.

Hand-Arm-Vibration is the transfer of vibration from a tool to a worker's hands and arms. The level of Hand-Arm-Vibration is determined by measuring the acceleration of the tool or object grasped by the worker.

Hand-arm vibration syndrome is a disease that involves circulatory disturbances, sensory and motor disturbances and musculoskeletal disturbances.

#### Exposure

Daily exposure to hand and arm vibration by workers who use vibrating tools powered by compressed air, gasoline or electricity (eg. powered hammers, jackhammers, chisels, chainsaws, sanders, grinders, riveters, breakers, drills, compactors, sharpeners and shapers) can cause physical damage to the hands and arms.

#### Symptoms

- Bluish discoloration (cyanosis) of the skin of fingers and hands.
- Whitening (blanching) of fingertips after cold or damp exposure (known as Raynaud's phenomenon).
- Numbness, with or without tingling happens, before, during or after blanching.
- Attacks, more common in winter, but eventually may occur year round.
- Palms of the hands are rarely affected.
- Sense of touch and pain perception reduced, sometimes forever.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Occupational Health**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 25

### **OCCUPATIONAL HEALTH**

- Decreased grip strength, and inability to sustain muscle power.

#### **Prevention:**

Reducing the incidence of HAVS requires numerous actions. Some recommendations to prevent HAVS are:

- Provide adequate rest breaks away from vibrating tools (e.g. Reduce exposure hours, decrease the number of days exposed to vibrating tool by job rotation).
- Follow manufactures instructions on proper use of equipment. (e.g. Do not remove hand grips on grinders).
- Design tools to minimize vibration.
- Design tools to keep hands warm (e.g. Heated handles, relocate air vents).
- Use ergonomic design to reduce grip force, awkward posture, etc.
- Perform routine medical checks of those at risk. Record all signs and reported symptoms.
- Warn workers of health risks.

NOTE: There is no therapy at present for neurological symptoms other than removal from vibration exposure, but improved circulation may help with nerve recovery.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Personal Protective Equipment**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

### **PPE**

#### **PURPOSE**

All workers must wear the basic requirements for personal protective equipment (PPE) in all CF workplaces at all times. Supervisors will adequately assess the need for PPE and ensure it is supplied and worn when necessary. When additional personal protective equipment is required in the workplace, all workers shall comply with the requirements. Workers will be trained in the proper use of PPE and any worker failing to comply with PPE requirements will not be permitted into CF workplaces.

#### **SCOPE**

##### **Personal Protective Equipment (PPE)**

Each worker must be:

- Instructed in the proper use and maintenance of personal protective equipment.
- Instructed when and why it is to be used.
- Informed of its limitations.
- Instructed when and how it is to be replaced.
- Instructed to inform supervisors of any physical or medical limitations while wearing the equipment.
- Checked for proper fit.

##### **Basic Requirements**

- All safety equipment must meet CSA standards and shall carry markings, numbers, or certificates of approval. See table below for a guide to personal protective equipment.
- Hard hats are to be worn in accordance with pertinent safety standards.
- Safety glasses shall be equipped with side shields and fit high enough on the nose to adequately protect the eyes.
- All prescription glasses shall meet all safety glass requirements including permanently affixed side shields.
- All PPE should be visually inspected prior to use and as per manufacturer requirements.
- Ear protection must be adequate and comfortable.
- Safety footwear must be worn.
- All eye and face protection must fit properly with appropriate head protection.
- Safety harnesses and shock-absorbing lanyards are to provide maximum safety and be as comfortable as practical.
- High visibility vests must be worn in high traffic areas.
- Basic clothing shall be worn by all workers (full legged pants and shirts with a sleeve). Muscle shirts and shorts will not be permitted. Full body clothing may be required in certain jurisdictions.
- Respiratory equipment must fit properly and be used within its limitations. Manufacturer's specifications must be followed. Where an airtight seal is required, workers must be clean shaven.
- Regular safety audits will include checking to ensure that all personal protective equipment is worn and used as per manufacturer's requirements.

Note: Safety equipment must fit properly and provide protection. More than one style of personal protective devices may be necessary. Old or defective equipment must be discarded.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## Section: Personal Protective Equipment

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

## PPE

### Personal Protective Equipment Guide

Body Area	Work	Required PPE's
Eyes, Face & Mouth	Low velocity flying particles	Safety glasses with side shields
	High velocity chips and sparks	Impact goggles or safety glasses with rated full-face shield
	Corrosive liquid splash during transfer	Splash-proof goggles and face shield
	Breaking into an acid piping system	Acid hood
	Medical emergencies	Face mask, safety glasses & whenever CPR is administered a micro shield. Bleach clean-up.
Head	e.g. Overhead rigging Material Handling Maintenance & general construction operation, etc.	Hard hat must be CSA approved
Ears	High noise level	Ear plugs or muffs
Respiratory Protection	Low hazard inert dusts	Dust mask
	Low concentration solvent vapours	Cartridge type organic vapour respirator
	Acid mists	Cartridge type acid mist respirator
	High concentration of dust or vapour	Supplied air respirator
	Oxygen deficiencies or gases	Confined Space Procedure
	Airborne silica	Approved NIOSH half mask, high efficiency air purifying respirator. See respirator program.
Hands & Arms	Handling rough or sharp objects	Cut resistant gloves/Insulated gloves
	Handling hot objects	Insulated Gloves approved for heat
	Using solvents	Approved gloves for this use
	High voltage work	Approved rubber gloves with covers (dielectric approved)
	Medical emergencies	Rubber gloves - Bleach clean-up
	Vibrating tools	Anti-vibration gloves/mats





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## Section: Personal Protective Equipment

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

### PPE

Trunk & Full Body	Working with steam corrosive liquid	Synthetic apron
	Punctures, impacts or cuts	Canvas or leather kickback apron or metal mesh apron
	Breaking acid lines	Full body suit made of appropriate materials
	Traffic areas	High visibility vests
	Outdoors	Sunscreen/and or clothing
Knees	Kneeling	Gel knee pads
Fall Protection	Working from elevated structure of platform without guardrails	Fall Protection full body harness and shock-absorbing lanyard OR Travel-restraint systems.
	Vessel entry; specifically review Confined Space requirements	see Confined Space Procedure
	Work at elevation where hazards below exist or potential for hitting ground	Approved Anchor Point, Full body harness and retractable lanyard/lifeline.
	Suspended scaffolds	Lifeline, rope grab, full body harness and shock-absorbing lanyard.
Feet	General Safety	Steel-toed Boots
	Corrosive Areas	Rubber or other suitable steel-toed boots
	Slippery surface	Appropriate grip soled steel-toed boots



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Personal Protective Equipment**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

### **PPE**

#### **Hand & Arm Protection**

##### **Standard**

Hand and arm protection suitable to the hazard shall be used.

Hand Protection

##### **Procedure**

Hand protection shall be used as follows:

- Skin damage due to solvents, chemicals and other agents shall be prevented by using the protective gloves or barrier cream required by the WHMIS 2015 / Hazard Communications Safety Data Sheet / SDS.
- Dielectrically tested rubber gloves are required on all power line work and where there is possible contact with energized circuits. Gloves will need to be retested as per manufacturer requirements.
- Tool holders are required where the hazard of being struck by a driving force exists.
- Tag lines are required to control loads. Keep hands clear of loads and sling pinch points. Do not wrap tag lines around hands.
- Clamps shall be used to hold small pieces when using power tools.
- Rings and other jewelry must be removed if there is a likelihood of entanglement.
- Leather faced gloves are required when handling wire rope, sharp objects, or hot metals.
- Cut resistant gloves should be worn when working with sharp tools and materials.
- Anti-vibration gloves may be necessary with certain tooling/machinery. (refer to hand arm vibration for more information)

#### **Arm Protection**

Long sleeves or arm protectors are required to protect the arm during hot work or other work that poses a risk of heat, burns, arc flash, flames or other thermal hazards.

#### **Flame Resistant Coveralls Standard**

Flame resistant coveralls are required to be worn where there is the potential for flash fire.

##### **Procedure**

Flame resistant clothing shall be worn as follows:

- Cutting and welding on live lines
- Purging gas from a line
- Within 5 meters of blowing gas
- When plant systems have been altered by damage or hazardous environmental changes
- Abandoning mains or services
- Cutting (hot or cold) on live pipelines
- Until the pipe has been completely blown down and purged
- In excavations/trenches where natural gas is present
- During high volume tapping tee fusions
- Welding on live, open end pipelines
- Stopping and tapping operations



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Personal Protective Equipment

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

### PPE

- Gouging
- Leak repair; or any other situation where potential for gas to blow or accumulate, or of an accidental flash fire exists.

**Note:** Consult the H&S Department

Other requirements for the wearing of flame resistant clothing can be when working in refineries and similar workplaces.

#### Wearing Flame Retardant Clothing

The garment is made of a material that will slow, terminate or prevent flaming combustion. Follow these simple steps to ensure you are adequately protected.

- Fasten the coveralls up the front
- At the wrists
- At the ankles
- Tightly draw the hood to prevent escaping gases from accumulating inside the coveralls.
- Draw the hood over the head for added protection.
- Flame resistant hoods or balaclavas must be worn underneath hard hats.

#### Protection

The coveralls are designed to provide some degree of protection from a flash fire and give you time to escape the fire area.

They are not intended to protect from prolonged exposure to fire.

**Note:** Generally, coveralls provide more protection if worn over cotton or woolen clothing as opposed to synthetic fabric, like nylon or polyester.

#### Maintenance of Clothing

The flame retardant coveralls are to be kept reasonably clean, free of oils, greases and other flammable items, and have not reached the point of serious deterioration. The supervisor shall ensure flame resistant clothing is changed as required.

If you wash your coveralls:

- Refer to manufacturer guidelines
- Use cold water and usual laundry detergent
- Do not wash with other light coloured clothing articles, as the material is not colour-fast
- Do not use bleach (bleach removes the flame retardant qualities)
- Dry at a low temperature to prevent shrinking

#### Storage

When not in use, store coveralls in a clean, dry place.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Personal Protective Equipment

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

### PPE

Note: Flame Resistant coveralls form a component to Arc Flash protection. Refer to Arc Flash guidelines for further information.

#### Respirators

##### Standard

Where workers are exposed to hazardous dusts, fumes, mists, vapours, etc, suitable respiratory protection will be worn.

##### Protection Factors

The level of protection offered by the various types of respirators is rated by the amount of leakage that can be typically expected and is referred to as "Protection Factor."

Protection Factor = Amount of contaminants outside the respirator/Amount of contaminants inside the respirator

**Example** - A half face Air Purifying Respirator Protection Factor = 100/10

Protection Factor = 10

The Protection Factor is assigned by NIOSH and is determined by laboratory testing of the equipment.

½ Face APR	FF APR	FF PAPR	Hood PAPR	Airline SAR	Airline SAR w/escape	SCBA
10	50	100	25	100	10,000	10,000

##### Definitions:

- ½ Face APR = ½ Face Air Purifying Respirator
- FFAPR = Full Face Air Purifying Respirator
- FFPAPR = Full Face Powered Air Purifying Respirator
- Hood PAPR = Hooded Powered Air Purifying Respirator
- Airline SAR = Airline Supplied Air Respirator
- Airline SAR w/escape = Airline Supplied Air Respirator with escape bottle
- SCBA = Self Contained Breathing Apparatus

#### Respirator Selection

The type of hazardous dusts, mists, gases, fumes and the concentration in which they are present in the workplace dictate which type of respirator that needs to be worn. Specific information regarding a product and the potential toxicity can be found in the Safety Data Sheets (SDS). The SDS should indicate whether or not a product can cause harmful effects if it is inhaled and what levels of exposure are hazardous. The SDS should also indicate what type of respirator is required. When contaminants are unknown, atmospheric testing will have to be performed by qualified personnel to determine what personal protective equipment will be necessary to adequately protect workers. Consult the H&S Team for assistance.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Personal Protective Equipment

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 7

### PPE

**Note:** The selection of an Air Purifying Respirator requires the use of appropriate filter Cartridges matched to the hazard.

#### Training

Each worker that is assigned respiratory protection must receive training on the best safe practices regarding the use, care and limitations of the respirator he/she is assigned. Training must be delivered by a competent worker and recorded by means of a Training Memo (see orientation, training and education section of this manual).

#### Fit Testing

All workers required to wear a respirator will receive a fit test to determine what size of respirator they require and to ensure an adequate face seal is achieved with the respirator face piece.

Workers with beards, long sideburns, or heavy stubble may not wear respirators because the hair breaks the seal between the skin and the respirator mask.

Only facial hair that does NOT contact or break the respirator seal is permitted.

When wearing a full-face respirator, eyeglasses may not be worn as this will break the respirator seal. Breaking the seal means that the respirator mask will "leak" and will not provide the needed respiratory protection.

Contact the H&S Team for any questions regarding respirator fit or fit testing.

There are two basic types of fit testing, Quantitative and Qualitative. A Qualitative fit test will be performed. Contact the safety department for assistance. In order to ensure an effective face seal, you must be clean shaven.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## PURPOSE

CF requires that all tools, equipment, and vehicles are maintained as per the manufacturer requirements. This will ensure proper procedures and standards are used when maintaining equipment in our workplaces.

Operators are to complete a safety circle check and report any equipment problems immediately to their supervisor. The supervisor shall make sure that such problems are attended to immediately by authorized mechanical personnel.

The heavy equipment information contained in this section is to be used as a working guideline. Always refer to the operator's manual for specific information and maintenance schedules.

General heavy equipment operators must be competent, trained or knowledgeable in the specific equipment they operate either by unions, trade qualifications, 3rd party agencies or experience.

### Personal Protective Equipment & General Safety Awareness

- Heavy equipment operators must wear hard hats when the equipment they are operating is not equipped with an enclosed cab.
- Hard hats are required any time operators get out of the cab. See Section on Personal Protective Equipment.
- Seat belts are to be worn as per manufacturer specifications.
- Always take time to make sure off footing.
- Develop the 3-point contact habit (one hand and two feet or two hands and one foot).
- Don't jump off the machine. Don't get off the machine while it is in motion.
- Take care when dismounting equipment.
- Be aware of your work area and the people in it.
- Do not leave equipment running unattended.
- Report all incident/accidents and safety opportunities to a supervisor.

### Pre-Checks & Start-Ups

- Before starting equipment, complete the Equipment Operators Daily Inspection, conduct a visual inspection and check oil levels, tires, lights



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

and backup horn. Add oil if required.

- Disengage all drive mechanisms and clutches.
- Start equipment. Warm up for approximately 30 minutes in cold weather, 15 minutes in warm weather.
- Ensure buckets are lowered and brakes are applied.

#### Equipment General Operating Procedures

- Always operate equipment within the rated capacity and according to manufacturer instructions, as found in the operator's manual
- Ensure that the trailer deck and ramp are clear of snow and ice when loading or unloading equipment.
- Before mounting equipment, perform a walk-around and inspection. Report any safety defects and repair requirements to a supervisor.
- Always face equipment when mounting and dismounting. Make sure both hands are free to assist in climbing onto the equipment.
- Read and obey operator warning decals placed on equipment.
- Make sure footwear is free from grease and dirt when climbing on and off machines.
- Use operator's manual start up and shut down procedures.
- Use a signal person at all times when view is obstructed.
- Operators shall be off the machine during servicing and repair procedures.
- Operate equipment with lights on at all times.
- When leaving machines, ensure you engage all safety brakes and lower all raised components.
- Do not allow anyone to ride on equipment that is not equipped to carry passengers.
- Use stabilizers when digging with rubber tired backhoe.
- Do not overbalance machine when lifting or digging.
- Do not use bucket as a "jack-hammer" – use the ripper.
- Ensure work area is clear of persons and equipment.
- Operate hydraulic controls smoothly.
- Do not ride in the back of pickup trucks.
- Obey speed limits and posted signs.
- When passing other vehicles, use extreme caution.
- For greater visibility, whenever possible, choose to make left hand turns rather than right hand turns.
- Always be aware of and maintain defensive driving techniques.
- Do not use cell phones or other personal electronics while operating any equipment



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- No smoking in any equipment
- Where there is a hazard of overhead hazards and falling material, equipment will be equipped with a Falling Object Protective Structure (FOPS), designed and installed as per manufacturer's requirements.
- Where there is a hazard of equipment overturn, equipment will be equipped with a Roll Over Protective Structure (ROPS), designed and installed as per manufacturer's requirements.

### Road Right of Way

1. Obtain necessary excavation permit from the jurisdictional authority.
2. Examine the nature of the traffic at the work site to fully understand the consequences or proposed interruption.
3. Review time restrictions for closing or diverting traffic.
4. Place barricades and other warning signs as appropriate.
5. Assign traffic control persons to their duties (see Traffic control person section, below)
6. Bring in equipment and man power as necessary.

### Traffic Control Person

1. Use personal protective equipment – (hard hat, high visibility safety vest, safety footwear).
2. Check sign to ensure it can be seen clearly (colour and writing).
3. If using hand radio, check to ensure it is working.
4. Position yourself where you can be seen by project and road traffic.
5. Make sure you communicate with other traffic control persons on traffic movement.
6. Direct traffic.
7. Do not use personal electronics while directing traffic.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

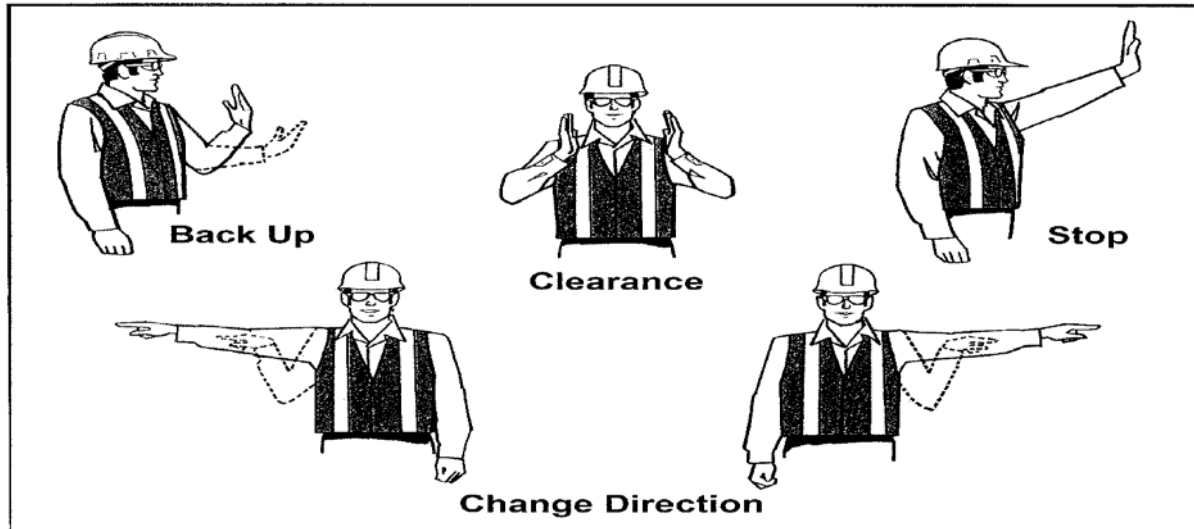
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## Hand Signals for On-Site TRAFFIC CONTROL



### Road Construction Work

- Traffic Control: Barricades, blinkers, flares and warning signs, etc. shall be erected as required by legislative requirements. (Refer to specific highway traffic control requirements in your geographical area.)
- Park personal vehicles in a safe location away from the project and other traffic.
- Traffic control person's vehicle must be parked clear of roadways.
- Competent, trained traffic control persons shall be used for traffic control (as required)
- Cleated equipment shall not be driven across hard surface highways or bridges without protecting the surface.
- Warning signs shall not be removed until road and highway crossings are properly leveled, shoulders repaired and ditches cleared.
- Equipment operators shall obey all directives from traffic control personnel.

### Working Near Overhead Power Lines –Guidelines

- If working near or crossing under power lines:
- Use a signal person to assist if view is obstructed or you are encroaching on the limits of approach.
- Keep booms and equipment a safe distance away from overhead power lines. Refer to jurisdictional requirements in your area of operation.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- If a closer approach is required, contact the utility Cfor assistance. The line may have to be de-energized or insulated.
- When digging near power poles, if the soil is hard, you may dig up to 5m away from the pole. In gravel or soft soil, the operator is to use his discretion. If cave- ins are being experienced, even up to 5m away from the pole, contact thepower company and it will come out to secure the pole during the digging operation.
- Erect clearly visible warning signs advising of overhead powerlines.

#### Procedure for Working Around Energized Overhead Electrical Conductors

All precautions reasonable in the circumstances must be taken whenworking around Energized Overhead Electrical Conductors.

The following procedure will be followed:

1. No backhoe, power shovel, side boom, loader/excavator, vehicle, crane and similar devices shall be brought closer to phase to phase voltage rating as noted below:

- 750 to 150,00 volts = minimum distance 3 meters (10 feet)
- 150,000 to250,000 volts = minimum distance 4.5 meters (15 feet)
- More than 250,000 volts = 6 meters (20 feet)

**Distance may vary based on your jurisdiction.**

2. If it is possible to bring part of any vehicle, equipment or its load near the minimum distance as noted above the following procedure will be followed:

A signaler will be stationed in full view of the operator, the electrical conductor and the vehicle and its load to warn the operator each time the load may approach the minimum distance.

- The signaler shall wear a fluorescentgarment.
- The signaler shall be clear at all times of the travel path of thevehicle.

3. A clear and visible warning sign indicating overhead conductors will be posted.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

## HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

**NOTE: AT NO TIME WILL ANY EQUIPMENT OR LOAD BE BROUGHT WITHIN THE ABOVE NOTED MINIMUM DISTANCE. IF A CLOSER APPROACH IS REQUIRED CONSULT THE LOCAL UTILITY.**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

### Working Near Live Pipelines, Buried Cable and other Utilities

- Don't start work until all underground lines in the work area have been located and marked.
- Use a signal person at all times when digging in and around buried utilities.
- Never enter into an excavation or trench until it is safe to do so. See Safe Work Procedures, Section 23.
- Any excavation or trench left unattended must be barricaded to prevent entry by other workers and the public.

### 25.2 Safe Work Practice for Loading and Unloading Heavy Equipment

- Ensure the truck and trailer is compatible with the equipment being loaded.
- Ensure the loading / unloading area is free of overhead wires, fire hydrants, poles
- Ensure truck and trailers are parked on level ground.
- Apply parking brakes on truck and trailers.
- Ensure that the loading ramp or blocks are safe to use.
- Ensure that the machine is lined up precisely with the deck.
- Ensure that the operator can see the signal person clearly at all times.
- Ensure that the deck is free of ice and snow to ensure traction. Use salt, sand or shovel clean.
- Ensure the trailer hitch at the front is not sustaining the weight of the equipment while it's being loaded. Place approved blocking under the trailer deck prior to loading.
- Only competent personnel may load or unload heavy equipment
- Proceed to have the operator walk or drive the machine onto the deck under the direction of the signal person.
- Ensure the signal person is well clear of the machine
- When the machine has been walked onto the deck, apply parking brakes.
- Ensure all attachments are lowered and resting on the deck.
- Ensure that engine is turned off as per procedure for stopping hot engines.
- Ensure that proper chains and binders are used to secure the machine cover to the deck.
- Ensure the flags or lights are attached to machine if required.
- Ensure there is no loose material or parts left unsecured on machine.
- When unloading machines, reverse procedures.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## **25.3 Tie Down Chain and Lever Binders**

### **Standard**

Workers involved with securing equipment on floats for transportation shall be familiar with the necessary tools and safety precautions:

The following safe work practice is to be used whenever load lever binders are required.

**Note:** Load Lever Binders with stored energy are not to be used. Many workers in the industry have been injured. Use ratchet lever binders or soft release lever binders. Do not use cheater pipes.

- Ensure the load is positioned in centre of float
- Ensure tie down chain is in good repair
- Block any equipment capable of rolling during transporting
- Ensure the necessary amount of tie downs are used to secure equipment. Check with your local jurisdiction.
- Ensure equipment is secured in place and all excess chain has been wrapped to prevent dragging. Lever handles must be secured to prevent slippage or tension.
- Drive a short distance and re-inspect load for slack. Any slack noticed will require further tension.

**Note:** Tie down chain shall not be used for hoisting under any circumstances. Only approved hoisting chain with load capacity tag shall be used.

## **25.4 Heavy Equipment – Moving & Backing Up**

Operations involving heavy equipment should be planned to avoid backing the equipment as much as possible. In many operations, the awkward backing movement of this equipment is not always economically or environmentally possible.

Whenever the backward movement cannot be eliminated, the machine or equipment must be adapted for backing movements.

- Heavy construction equipment (wheeled vehicles) such as dump trucks, front-end loaders, and cement trucks are equipped with special mirrors to help eliminate blind spots. Even with these seeing aids, there are still blind spots from the operator's control position.
- Blind spot diagrams for each type of construction equipment are available from the manufacturers showing what an operator can see toward the rear of the equipment he is operating. However, some heavy construction equipment has no view to the rear from the operator's position and requires a signal person for moving backwards.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- Reverse alarms installed on construction equipment: the advantage of the reverse alarm is that any person close to the rear of this equipment is alerted to forthcoming rearward movement of the machine
- Avoid parking vehicles or placing material or equipment in areas where heavy construction equipment is operating.
- Do a circle check for obstacles before moving equipment.
- Operators of heavy equipment must be capable of operating equipment and be physically fit.
- Operators must know the limitations of the equipment.
- Only qualified operators shall move equipment.
- If moving equipment after dark, make sure the white lights on the rear of the machine are off, if so equipped. This will prevent the public traffic from thinking that the equipment is on-coming. Hazard lights should be on if so equipped.
- When required, follow the Safe Work Guidelines for operating on steep slopes and banks.
- If moving on steep grades, maintain a minimum of 500 meters spacing between each piece of equipment. If a steep grade is less than 500 meters in length, each piece of equipment should clear the bottom of the hill (with room to spare) before the next piece of equipment begins its descent down the hill. Closer spacing and/or passing may be permitted on level road surfaces – if traffic allows.
- When moving in a train on narrow roadways, maintain spaces between each piece of equipment, so that public vehicles may pull in after passing a piece of equipment.
- Never move equipment that is low on fuel, especially on hilly roads.

#### **25.5 Heavy Equipment Lifting Jacks & Support Stands Standard**

Any operation required to raise or support any type of heavy equipment for repairs or maintenance shall be done according to manufacture specifications or best practice.

##### **Procedure**

- All lifting jacks and support stands shall have its rated capacity legibly casted or stamped on it in a place where it can be readily seen.
- All shop built stands must be certified by a registered professional engineer and safe working load visibly displayed.
- Jacks and support stands should only be used on solid level ground.

Always verify that the stand is suitable means of support capable of holding the intended load.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## **25.6 Working on Uphill / Downhill Grades**

- Do a walk-around check before daily start-up.
- Check all fluid levels; top them up if necessary. Why? Because with low fuel the machine might stall, low brake fluid etc.
- Check functioning of all systems (i.e. brakes, hydraulics, lights etc.). Consider reducing ballast if necessary.
- Know where ground personnel are at all times and where traffic is in relation to work.
- Wear appropriate P.P.E.
- Wear seat belts
- Before encountering a steep grade while still on level ground and stopped, shift to an appropriate gear. If unsure, consult the Foreman/Superintendent. This information must be covered in training scenarios.
- Do not shift gears for any reason while operating on grades (up or down).
- Never leave the operator's seat while operating on grades. Except in an emergency.
- Check brakes, air pressure and gauges periodically (more often than you normally would) to ensure proper operation.
- Park on a flat area or cross slope if required. Set park brakes and block wheels if necessary.

## **25.7 Spotters, General Requirements Standard**

Applies to all equipment operating in close proximity to other vehicles, equipment, structures, material, or in congested areas where a spotter is needed to ensure safety of personal and prevention of damage.

### **Procedure**

This procedure establishes the minimum safety requirements from all Employees and Contractors to follow while positioning/backing vehicles/equipment. The intent of this procedure is to prevent injuries and damage to property that could occur due to blind spots and undetected movement of personnel and equipment that result from unsafe vehicle/equipment positioning/backing practices. Where backing is unavoidable, spotters shall be used. When vehicle/equipment must negotiate forward turns with restrictive side clearances and where height clearances are uncertain, a spotter shall be used.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## Responsibilities Operator's Responsibilities

Prior to positioning/backing a vehicle/equipment the operator shall:

1. Complete a FLRA card (Field Level Risk Assessment) prior to staging equipment on location and/or positioning/backing a vehicle/equipment.
2. Complete 360-degree walk around of the vehicle/equipment to determine if any obstructions and potential hazards are present.
3. Clear the area of people and objects if possible.
4. Ensure overhead and side clearances are adequate.
5. Obtain guidance from a spotter to help position/backup the vehicle/equipment.
6. Make sure the spotter is aware of all obstacles identified during the initial "walk-around" survey.
7. The operator will discuss the positioning/backing plan with the spotter before proceeding.
8. The operator will establish hand signals with the spotter used for positioning/backing up.
9. Operator to maintain line of site with spotter.
10. The operator shall stop the vehicle/equipment immediately prior to losing sight of spotter.
11. The operator shall stop immediately if an emergency "stop" signal is received from anyone in the area.

## Spotters Responsibilities

Prior to acting as a spotter for an operator moving a vehicle/equipment the spotter shall:

1. Complete a FLRA card (Field Level Risk Assessment) prior to participating in the staging of equipment on location and/or positioning/backing a vehicle/equipment.
2. Ensure that the hazards are reviewed on the operator's FLRA card and signed off.
3. The spotter will discuss the positioning/backing plan with the operator before proceeding.
4. Hand signals will be agreed upon and understood prior to positioning/backing.
5. The spotter must remain visible to the operator at all times, never place him/herself in the line of fire, and always ensure a safe escape route is available.
6. Ensure equipment operator is no closer than 1 meter (safe limit approach) from any building, utility and other equipment.
7. Stay alert to recognize and deal with dangerous situations.
8. Wear reflective work wear with high visibility stripes at all times.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

9. Establish a position, clear of the reversing vehicle, whereby the spotter doesnot have to walk backwards while backing/positioning thevehicle/equipment.
10. Immediately signal the driver/operator to stop if any person or object enters the area behind the vehicle/equipment.
11. Signal the driver/operator to stop when the spotter must change positions while vehicle/equipment is reversing.

#### **25.8**    **Signals**

It is important that everyone understands exactly what's being done when moving a vehicle/equipment. This will ensure the safety of everyone involved in the operation. It is important all of the workers involved understand who is directing the move and the procedures to be followed.

It is also very important to designate one spotter so there is no confusion with the signaling procedures. The following represent seven (7) basic signals to assist in vehicle/equipment repositioning.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

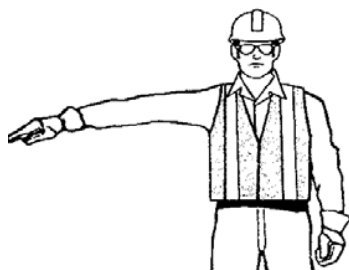
DATE OF ORIGIN: 02/02/2023

REVISION # 1

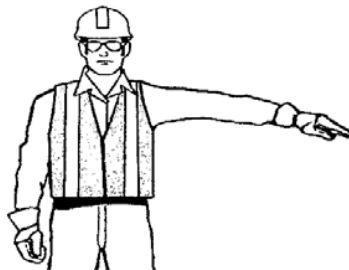
# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

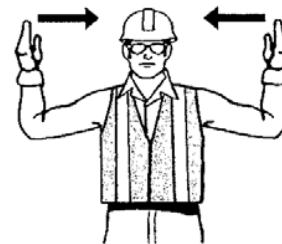
For Use with Excavators and Backhoes



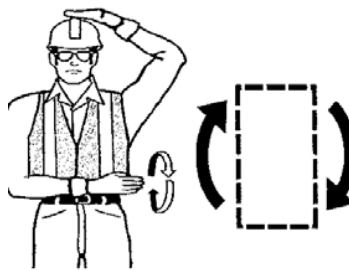
**Swing Left**



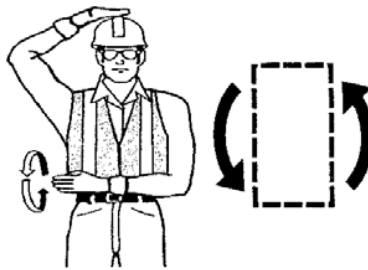
**Swing Right**



**This Far To Go**



**Counter Rotate**



**Counter Rotate**



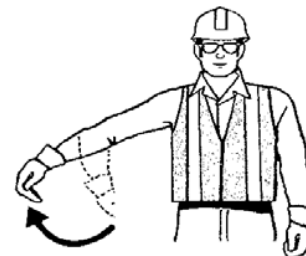
**Open Bucket**



**Close Bucket**



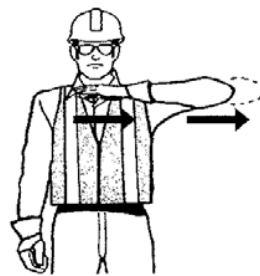
**Dipper In**



**Dipper Out**



**Emergency Stop**



**Stop Engine**

**NO  
RESPONSE  
SHOULD BE  
MADE TO  
UNCLEAR  
SIGNALS**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

For Use with All Other Equipment

PROCEED SLOWLY		
<div>FORWARD</div>	<div>BACKWARD</div>	
<p>Always face palms in the direction of travel desired.</p>	<p>Then both arms repeatedly toward head and chest, and then extend arms.</p>	
<div>←</div>	<div>TURN</div>	<div>→</div>
<p>Point one arm to indicate the direction of turn.</p>	<p>Bend monitoring arm repeatedly toward head to indicate continued turning.</p>	



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

#### DISTANCE TO STOPPING POINT



Face palms forward with hands above head. Bring elbows forward and together.

#### STOP



Cross both arms above head.

#### EMERGENCY STOP



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE



Start with hands clasped overhead.  
Extend downward repeatedly until vehicle/equipment STOPS



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## **25.9 Skid Steers**

- Make sure machine is good repair.
- Make sure bucket is down and park brake is on before getting off.
- Use care and caution while operating on any slope, and keep bucket as low as possible while doing so.
- Know where all other machinery, obstructions, utilities and personnel are while operating.
- Never work on the machine with bucket in raised position without securely locking it in that position.
- No riders are allowed in the bucket.
- Keep machine on all four wheels as much as possible (don't stunt).
- Keep bucket down at all times when moving machine to various places on the jobsite.
- Make sure back-up alarm is working properly.
- Wear proper PPE
- Wear your seatbelt

## **25.10 Snow Removal Safe Work Practices**

### **Pre-Trip**

- Ensure all PPE is in truck and being worn when required
- Dress according to weather conditions
- Check lights
- Check fluids
- Check break
- Check frame structure
- Check all blade and wing components
- Check hydraulic system
- Unchain the wing for visibility of passenger side mirror (if applicable)
- Complete hazard assessment

### **Operating Trucks with Blade**

- Operate equipment to manufacturers specifications
- Check mirrors and blind spots before moving vehicle
- Operate vehicle as to road and weather conditions, while obeying all applicable laws
- Work from the crown of road to the edge



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- Remain a safe distance from the edge of road
- Control speed to avoid spraying snow on sidewalk
- Position vehicle in correct lane to avoid contact with parked cars and roadside obstacles
- When driving path is obstructed, pick up wing and maneuver around obstacle
- Do not back-up vehicle if not safe to do so. Use a spotter when required
- If snow is not completely cleared from plow route, circle back to complete job
- Avoid raised road obstacles with blade of plow (manholes, road plates, or expansion joints)
- Position wing properly when not plowing
- Adhere to pedestrians and public

#### Salt Brine

- Follow- procedure for handling chemical (refer to MSDS/SDS)
- Only trained workers are to load salt bins
- Wear face-shield when filling brine
- Do not climb on hopper due to slippery surfaces
- Check spinners and conveyers for build-up of salt or snow
- Do not remove guard on equipment

Ensure that all snow removal vehicles and equipment are equipped with the proper coloured beacon as per jurisdiction

#### Truck Operation

- Sit in an upright position, with the seat belt fastened at all times.
- Test all braking systems to ensure proper function before operating truck. (Check operator's manual for the correct procedure for your truck.)
- Follow all traffic procedures, signs and speed limits required at the site.
- Test all steering functions prior to operation. (Check operators manual for correct procedure for your truck)

#### Working Procedures - Operator's Responsibilities

- Safe, productive operation of the equipment with a minimum of down time due to mechanical failure.
- Elimination of property damage and accidents by using care and consideration around other equipment and operators.
- Report unsafe conditions immediately.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

#### Travel Routes from Loading Area to Dump

- Confirm the designated travel route for your shift with Supervisor
- Know where the loading and dump locations are for your shift
- If you break through the frost at any location on the project radio contact your Supervisor and wait for instructions
- The mechanic should also inspect the truck when possible to confirm no components will be ripped off the truck while removing it

#### Spotting at Loading Equipment

- Check clearances.
- Visually check loading area on approach to be sure that no equipment or persons are behind your truck before reversing.
- Pay close attention to high-wall areas.
- Watch closely for other equipment, persons, small vehicles, etc....
- Clear communication with excavator/loader operator
- Ensure boom of excavator and/or bucket or loader is raised and out of the way

#### Dumping

- Make sure truck is level when dumping your load
- Stay away from unsafe or unstable ground that could cause the truck to overturn as it sinks to one side

#### Spotting at Dump Locations

- Check approach, berm height/thickness (when backing up to a dump, use the berm as a guide only)
- Look for cracked ground, settling, or bulges.
- Report any unsafe conditions immediately to your supervisor and other drivers.
- If spotters are provided, have direct communication with them or visual contact at all times.

#### Operating on Grades

- Use correct gear when descending on grades.
- Follow the manufacturer's grade profile charts.
- Gear down before descending the grade.
- Use the retarder to maintain proper speed.

#### Right of Way Procedures

- Follow all traffic procedures, traffic signs and speed limits required at the site.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- Do not operate the truck in unauthorized areas, follow established haulage routes and use designated parking areas. Watch for overhead obstruction. i.e. power lines, communication lines etc...
- When in doubt, **YIELD**.
- Always yield right of way to loaded truck.
- Always plan for meeting other vehicles and stay away from soft spots, unstable areas or high banks, that could cause you to get too close to other vehicles

#### Equipment Operators Daily Log

##### Standard

Operators of heavy equipment are responsible to ensure their equipment has been inspected on a daily basis prior to use. The inspection will be conducted using the Equipment Operators Daily Log Book or equivalent inspection report.

##### Responsibilities Supervisor

The supervisor is to ensure the following:

- Issue Log books to equipment operators
- That equipment operators are conducting daily inspections of their equipment
- That defective equipment is removed from service so as not to pose a hazard to any employee, public or other materials and equipment
- Report maintenance requirements to the appropriate personnel

##### Operator

The operator is responsible to ensure the following:

- Operators must complete the daily inspection of their equipment to ensure it is in good operation condition prior to use
- Identify any mechanical issue on the inspection card and notify their supervisor

##### Procedure

- The equipment operator will inspect their equipment each day before use
- The log must legible indicate any deficiencies, the operator's name, date.
- Any equipment with deficiencies serious enough must be removed from service, (lock out tag out may be required) until repaired
- The supervisor will notify the appropriate mechanical personnel that service is needed



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

#### **25.11** **Pick-up Trucks Standard**

These practices involve the more common safe driving practices used during the operation of a motor vehicle.

CF is responsible to ensure employees are provided adequate instruction in correct driving protocols when driving vehicles on rural, private or lease roads. The driver of the vehicle has the responsibility to adjust their driving habits to conform to the existing road conditions.

Employees operating a CF vehicle must have care and control of the vehicle at all times and obey the highway traffic act in your various jurisdictions and follow CF policy on "vehicle rules".

- All drivers/operators must have a valid driver's license and will have their drivers abstract reviewed.
- Drivers will conduct an inspection prior to operating the vehicle and will follow regular maintenance as per manufacturer's guidelines.
- Check all fluid levels; cooling systems, oil, and gas to be sure, they are acceptable levels for operation.
- Do not fuel while it is running.
- Do a walk around to check tires, condition of the truck and that all cargo is properly secured.
- Seat belts must be worn.
- Put vehicle in park and apply parking brake when stopping the vehicle.
- The operator must not drive under the influence of drugs or alcohol. This includes a) blood alcohol level above zero b) illegal drugs c) prescription medication that cause drowsiness or impairment.
- No Smoking in CF vehicles
- No use of hand held electronic devices (ex. Texting while driving)
- Whenever possible drivers will pull-through or back into parking spaces.
- All vehicle incidents must be reported immediately to the main office.

#### **25.12** **Fueling Heavy Equipment**

1. Ensure proper and operational fire extinguishers are on the fuel trucks and on the heavy equipment.
2. No open flames or cigarettes are allowed in the area.
3. Park fuel truck on level ground.
4. The operator will activate all safety and emergency brakes and will lower all hydraulic accessories such as blades, buckets, etc.
5. Shut off engine.
6. The person in charge of fueling will attach static ground to the unit being fueled. Only then will refueling commence.
7. The operator will wait until the fuel person has cleared the area and gives the operator an o.k. signal



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

before restarting the machine and resuming his/her duties

8. Cellular telephones should be shut off while fueling.
9. Spill kits are to be made readily available.

Note: Do not fuel within 30m (100') of any water shed.

#### Procedure

The storage and use of flammable and combustible liquids must meet the legislative requirements in your area. Gasoline and gas/oil mixtures are flammable liquids and diesel fuel is combustible liquid.

Temporary construction site fuel storage tank requirements must meet legislative requirements to prevent contamination of surface water and groundwater. The following are industry best practices:

- All large fuel storage tanks must be double walled.
- Tanks must be protected from physical damage that could include bumper protection against vehicles and equipment.
- Tanks must be substantially level.
- Area around tanks must be free of combustibles.
- Proper labeling of tanks is required.
- Warning signs need to be posted indicating "No Smoking".
- All dispensing hoses must be inspected for leaks and protected from physical damage.
- Dispensing of flammables shall be by mechanical pump and self-closing valve. Combustibles may be gravity dispensed if self-closing valve is used.
- Spill kit containing absorbency material to ensure immediate cleanup of an accidental spill is readily available.
- Fire extinguisher to be mounted in immediate area.
- Tanks must be located at least 15 feet from any building and/or property lines including roads.
- All tanks must have proper ventilation, spill warning device and an anti-backflow device.
- All fueling operations must be at minimum 30m (100ft) from any watershed.
- All fuel storage areas must provide secondary containment.

#### 25.13 Fuel Storage Requirements

##### Procedure

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HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

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- All fueling operations must be at minimum 30m (100ft) from any watershed.
- All fuel storage areas must provide secondary containment.

#### **22.29 Working with Compressed Air Tools**

- Compressed air and compressed air tools shall be used with caution.
- Pneumatic tools shall only be operated by competent persons who have been trained in their use.
- Compressed air must not be used for cleaning purposes to blow debris or cleardirt from any worker's clothing.
- Pneumatic tools shall never be pointed at another person.
- All hose connectors must be of the quick disconnect pressure release type with a "safety chain/cable."
- Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
- Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
- Before making adjustments or changing air tools, unless equipped with quick- change connectors, the air



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

shall be shut off at the air supply valve ahead of the hose. The hose shall be bled at the tool before breaking the connection.

- A proper pressure regulator and relief device must be in the system to ensure that correct desired pressures are maintained.
- The manufacturer's safe operating pressure for hoses, pipes, valves, filters and other fittings shall not be exceeded.
- The correct air supply hoses must be used for the tool/equipment being used.
- Hoses must be checked on a regular basis for cuts, bulges or other damage. Ensure that defective hoses are repaired or replaced.
- The use of hoses for hoisting or lowering tools shall not be permitted.
- The use of metal-reinforced hose shall be avoided near energized equipment. When this type of hose must be used, proper clearances shall be maintained.
- During operations using compressed air tools, be sure other workers in the area are made aware of or have restricted access to the hazard area.
- The equipment must be properly maintained according to the manufacturer's requirements.
- Follow the manufacturer's general instructions and comply with legislated safety requirements.

#### **25.30 Equipment Lock Out/Block Out Procedure**

To effectively disable a piece of mobile equipment from accidentally starting the following guidelines should be followed. Review owner's manual for specific information on the equipment being locked out.

1. Turn the machine ignition off.
2. Remove the key (if it has key ignition).
3. Close and lock the console if it has a cover and place the key in your pocket.
4. If the machine has a push button start, remove the battery ground cable.
5. Repair the machine.
6. After the repair, unlock the cover and replace the key.
7. If you require the machine running to test the repair, stand clear of any hazard locations. Do not approach any moving part while it is running.
8. Blocking of hydraulic cylinders or any other piece of equipment with the potential to move due to gravity.
9. Ensure tires are chalked to prevent unexpected movement.

#### **25.31 Forklifts and Related Equipment**

Forklifts and related equipment fitted with forks or lifting devices are widely used in the industry to handle material. General guidance for material handling using this type of equipment is provided below.

##### **Forklifts – Operator Qualifications Standard**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

Forklift trucks are to be operated by workers who are trained and competent to operate the equipment.

#### Procedure

1. The supervisor shall ascertain whether existing forklift operators have the necessary experience and training to operate safely.
2. Those who need training shall be provided with training arranged by their supervisor.
3. A certification card/letter shall be issued by the training agency.
4. Only those workers with certification card/letter or equivalent training may operate forklifts.
5. Operators are to inspect their forklift daily to ensure it is in safe operating condition. Report all unsafe issues to your supervisor. Do not operate an unsafe forklift.
6. Do not permit riders on any forklift.
7. Observe and obey the capacity of the forklift.
8. Place forks as far as possible under load. Drive with load against heel of rack with mast tilted back.
9. Space forks properly to balance and support load.
10. Do not move loads that are poorly piled or stacked.
11. Carry load as low as possible.
12. Match speed to driving surfaces, load and workplace conditions.
13. Travel in reverse when load obstructs forward vision.
14. Watch for overhead obstructions.
15. Operate smoothly and slowly.
16. Park forklift with controls in neutral, brakes applied and forks on the ground with the motor switch off.
17. Do not allow anyone to stand, walk, or work under elevated forks.
18. Operator restraint system (seat belt) shall be worn.
19. When raising or lowering a load the forklift must be stationary.

**Note:** The forklift is not to be used as a work platform. Do not hoist any person on the forks.

#### Forklifts Inspection – See H&S\_FORM\_045 Standard

Operators of forklifts shall make a daily inspection of his machine prior to use.

#### Procedure

If any of the following components are defective, the operator shall immediately inform his supervisor.

Inspect general condition of forklift for cleanliness and loose parts, and complete the daily inspection, see H&S\_FORM\_045.

#### Forklifts - Propane Fuel (LPG) Standard



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

Workers involved in the use of liquid propane gas (LPG) forklifts shall be familiar with their characteristics and the necessary safety precautions.

#### Procedure

- LPG tanks must be laying down when in use to isolate the fuel from the relief valve.
- The proper and safe storage position for LPG tanks is upright and secure (outdoors only).
- Check to see that the locking pin engages into cylinder.
- Handle cylinders gently; do not drop. Protect valve.
- LPG is "cryogenic" and will freeze skin on contact; therefore, wear protective gloves and safety glasses when making or breaking connections. Do this outside.

Repairs to carburetor or fuel system must be done by authorized and qualified

- workers.
- Change fuel tanks as follows:
  - Close valve on cylinder
  - Run engine until it stops to empty system
  - Shut off engine
  - Open connecting nut with non-metallic tools
  - Disconnect hose
  - Disconnect holding straps
  - Remove empty cylinder
  - Place full cylinder into proper position
  - Connect holding straps
  - Tighten connecting nut (wiggle hose)
  - Check to make sure gaskets are intact
  - Open valve on cylinder slowly and listen for leaks
  - Smell rotten cabbage - shut off cylinder valve
  - If valve leaks:
    - Once -re-follow procedure done
    - Twice -change cylinder
    - Three times -change hose
  - Open valve slowly and fully
  - Check that hose is turned inwards secure hose downward
  - Start motor and resume operation.
- Refer to MSDS for proper storage, handling, PPE and First Aid information.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## Forklifts - Batteries Standard

Workers involved in the use of electric forklifts shall be familiar with batteries characteristics and the necessary safety precautions.

### Procedure

- Batteries contain:
  - Sulphuric Acid
  - Electrolytes
  - Water
  - Explosive hydrogen and oxygen gas
- Batteries should be charged in an isolated, ventilated area equipped with an eyewash station.
- Handling battery acid:
  - Wear tight fitting eye protection, gloves, and coveralls
  - Pour acid into water; never pour anything into acid
  - Do not use metallic containers or funnels for acid
  - Splashes destroy most materials
  - Flush eyes for at least 15 minutes with eye wash if splashed; **GO TO DOCTOR** to be sure no permanent damage has occurred
  - Neutralize spills with baking soda
  - Rinse with clean water
  - Do not store acid near heat or sunlight
  - Refer to MSDS for proper storage, handling, PPE and First Aid information
- Exploding batteries:
  - Isolate batteries from sparks, flame, or any source of ignition
  - Shield eyes
  - Do not break live circuits at battery
- Charging batteries:
  - Unplug the charger before attaching or removing clamp connections
  - Attach proper clamp to proper terminal (usually red + and black -)
  - Follow correct procedure (see Section 20: Safe Job Practices – Lead Acid Batteries – Boosting)
- Servicing batteries:
  - Check for worn cables, loose connections, corrosion, cracked cases/covers, loose hold downs or deformed terminal posts
  - Replace worn parts
  - Tighten cable clamps with suitable wrench
  - Use a cable puller to remove clamps
  - Remove corrosion
  - Clean terminals with tapered brush





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- Use a battery carrier to lift a battery
- Do not overfill cells



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## Forklifts Maintenance Standard

Forklift maintenance shall be performed by duly qualified mechanics with the necessary safety precautions in mind.

### Procedure

1. Disconnect all batteries and propane before any work is done.
2. Clean up spilled oil or hydraulic fluid immediately.
3. Block forklift securely when removing wheels.
4. Support forklift hood in upright position or remove.
5. On LPG forklifts:
  - a. Shut off fuel valve
  - b. Run engine until it stops
  - c. Disconnect tank from hose
6. Check the operator's daily checklist for unreported defects.
7. Test by magnetic particle the main mast welds and forks annually.
8. Replace hoses, couplings, fittings, and connections according to manufacturer's recommendations.
9. Do not work beneath unsupported forks.

## **25.32 Trucks – Loading and Unloading**

### Standard

The driver of a truck shall ensure that the load is loaded, transported, and unloaded in a manner that will not cause harm to people, equipment, or materials.

### Procedure

- All vehicles carrying loads shall have their load properly secured.
- Loads, which project beyond the length of the vehicle, shall be marked with a red flag or light.
- Workers shall leave the cab of a truck while it is being loaded or unloaded.
- No person shall mount or dismount a moving vehicle or piece of heavy equipment.
- No material or equipment to be moved by crane, forklift, or similar device shall be stored under or near energized electrical equipment.

## **25.33 Load Security**

Loading and securing your cargo/equipment incorrectly could lead to fines, property damage, injury or even fatality(s).



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## Loading

Factors affecting arrangement of load:

- Type of vehicle
- Weight of load
- Height of load
- Width of load
- Length of load

## Arranging and Distributing Loads

Weight distribution of load affects the handling characteristics of the vehicle. The life of the vehicle's tires, frame, springs and bearing can be greatly reduced by improper weight distribution.

## Placement of Load

Heavy concentrated loads should be placed:

- Near the rear of the trailer
- On its long side if possible
- Over or just ahead of the rear axle
- Load should be securely blocked to prevent from sliding forward

An equal amount of weight is placed on all rear tires to prevent twisting and stress on the frame. Ensure that trailer is long enough for load.

## Securing Load

The chosen load securement system must be appropriate for the loads:

- Size
- Shape
- Strength
- Characteristics

Securement systems may include:

- Vehicle structure
- Blocking and bracing
- Tiedowns (Chains, Straps, Etc.)



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## General Requirements for Tiedowns

- Tiedowns must be designed and maintained to allow the driver to tighten them (excluding Steel Strapping)



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

## HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- Edge protectors must be used where tiedowns could be cut or subject to abrasion where in contact with load
- Tiedowns must be firm and must not slip, loosen, unfasten, open or release while the vehicle is in operation

Tiedowns with the following defect must not be used:

- Chain containing cracked welds or links
- Chains containing bent, twisted, stretched or collapsed links
- Chains links weakened by gouges, nicks or pits
- Chain incorrectly repaired
- Chain links obviously worn or showing other visible evidence of loss of strength
- Knots in any portion of chains, wire rope or webbing
- Spread or distributing grab hooks
- Cuts, slits, nicks in nylon webbing
- Wire cable with missing strands
- Anchor point which is weakened or shows loss of strength due to cracks, breaks or distortion

### Light Weight or Fine Particle Material

- Load must be covered entirely by a tarpaulin or other covering so that none of the load can escape from the vehicle. Examples:
  - Sawdust, shavings or woodchips
  - Sand
  - Salt
  - Granular
  - Recycled Asphalt Pavement (RAP)
- Do not use cell phones or other personal electronics while operating any equipment
- Never leave the seat of the machine while still in motion. A signal person will direct the driver.

### 25.34 Trucks (over 4500kgs/Yellow Sticker)– Daily Inspection

#### Standard

All trucks shall be maintained in safe working order.

#### Procedure



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

## HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

The truck driver shall conduct a daily circle check of his vehicle prior to initial use inspecting the following areas where applicable:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- All lights and license plates
- Engine oil level
- Radiator coolant level
- Tie rods
- Tires and lug nuts
- Any oil leaks
- Transmission oil level
- Fuel tank level and condition
- Ride cylinders (struts)
- Parking brake
- Drive line
- Steering cylinders
- Air tanks
- Windows and mirrors
- Fire extinguisher shall be installed in all vehicles as per our client's safety policy
- Hydraulic tank and levels
- Horn
- Windshield wipers/washer fluid
- Braking System

Management and operators are responsible to ensure operators of CVOR (commercial vehicle operator's registration) or equivalent commercial vehicles operate as per allowable hours of service referring to your areas transportation enforcement requirements.

**Note:** Report any unsafe condition to your supervisor for corrective action.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

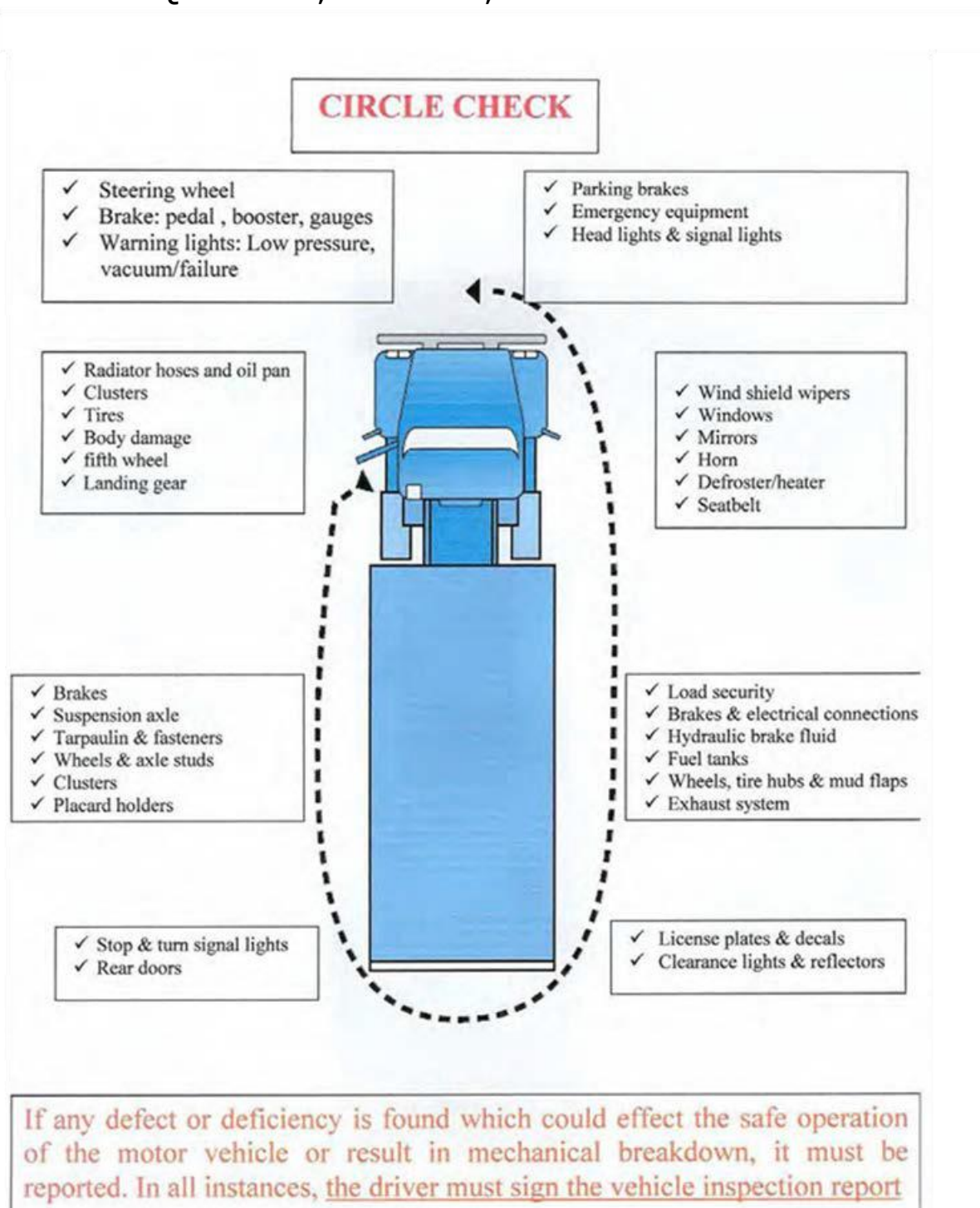
PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE







HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

### **25.35 Fleet Vehicles – Maintenance Standard**

CF pick-up trucks and vans shall be maintained in safe working order.

#### **Procedure**

Regular Vehicle Inspection H&S\_FORM\_040 of CF vehicles shall be done by the operator or other qualified person on a weekly basis as follows:

- All lights
- Tires
- Fluid leaks/levels
- Emergency brake
- Clean windows, good wipers/washer

It is the operator's responsibility to arrange for preventative maintenance:

- Oil and filter changes
- Lubrication
- Tightening of components
- Engine tune
- Brake jobs
- Tire rotation/ replacement
- Replacement of specific engine hoses
- Radiator maintenance
- Spring service for air conditioner

It is the operator's responsibility to arrange for demand maintenance:

- Light bulbs
- Springs/suspension
- Window glass
- Wiper blades
- Wiring
- Gauges
- Tires
- Engine, transmission



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- Battery
- Universal joints

If major repair costs are anticipated discuss with your supervisor for direction.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## **25.36 Transporting Dangerous Goods Standard**

Vehicles transporting dangerous goods shall have the proper placards and safety requirements in accordance with the applicable legislation.

### **Procedure**

Operator of owned or leased vehicles shall:

- Determine the quantity of dangerous goods.
- Consult the local jurisdiction for exact regulatory requirements.
- Ensure all requirements are followed.

### **General Requirements**

- The operator of the vehicle shall have proper TDG training and carry a valid certified wallet card on his/her person.
- A shipping document, must accompany the dangerous goods. The number of dangerous goods being shipped must equal the number on the shipping document.
- Ensure that there is a fire extinguisher readily available
- All items offered for transport must be in good condition
- Do not ship material in damaged, rusted or leaky pails, drums, or damaged seals
- Do not ship damaged cartons

All dangerous goods must be identified in accordance with the appropriate labels Dangerous Goods are classed as follows:

- Class 1 - Explosive
- Class 2 - Flammable and Non Flammable Gas
- Class 3 - Flammable Liquid
- Class 4 - Flammable Solid Class
- Class 5 - Oxidizing Substance
- Class 6 - Toxic Substance
- Class 7 - Radioactive Materials
- Class 8 - Corrosive Class
- Class 9 - Miscellaneous Products, Substances or Organisms



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## **25.37 Boom Truck & Crane Operations General Operation Procedure**

- Only licensed and qualified crane operators who have been properly instructed may operate the controls.
- Operator must be familiar with operator manual supplied by the crane manufacture. Manual must be available in cab.
- Operator must complete the operator crane log book as required and the Boom Truck / Crane Inspection H&S\_FORM\_046.
- All outriggers beams (if equipped) are to be fully extended and outriggers pads are to be placed on a solid footing or blocking. All wheels are to be clear of the ground.
- The boom angle, boom length, load radius and the rated capacity must be known by the operator.
- Crane must be set up level.
- The lifting hook is directly above the load's center of gravity.
- Load weight must be known.
- Rigging must be correct for the hoist.
- Crane is set up level on firm, stable ground or blocking. (Crawler Cranes).
- Crane controls should be moved smoothly and gradually to avoid abrupt, jerky movements of the load. Slack must be removed from the slings and hoisting ropes before the load is lifted.
- Be sure that everyone in the immediate area is clear of the load and aware that a load is being moved.
- Do not make any lifts beyond the rated capacity of the crane, slings chains, rope slings, etc.
- Do not operate crane if the limit switches (if equipped) are out of order, or if ropes or other rigging show defects or wear.
- Make certain that before moving the load, load slings, load chains, or other lifting devices are fully seated in the saddle of the hook with the latch closed.
- At no time should a load be left suspended from the crane unless the operator is at the master switches or push button with the power on.
- When two or more cranes are used in making one lift, there shall be only one designated signal person.
- Operator has total care and control of any lifts and their decision is final and must not be influenced or pressured to make any pick he/she feels uncomfortable.
- Weather conditions should be considered when making a lift.
- All cranes must be inspected yearly and recertified by a competent professional engineer.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

### **25.38 Crane Boom Inspection**

A crane boom used for driving piles with a vibratory hammer must be inspected and certified by a professional engineer as safe for continued use

- As required by manufactures specification while it is in use;and
- When not in use, before being returned to hoistingservice.

A crane boom with a vibratory pile extractor must be inspected and certified by a professional engineer as safe for continued use

- As required by manufacturers specification while it is in use;and
- When not in use, before being returned to hoistingservice.

A crane boom used for dynamic compaction must be inspected and certified by a professional engineer as safe for continued use

- As required by manufactures specification while it is in use;and
- Before it is returned to hoistingservice.

The purpose of this procedure is to organize the timely cleanup of lost material on public roadways.

### **Procedure**

When a spill occurs on the way to a jobsite/pit/quarry on a public roadway dispatch is to be notified immediately. The trucking manager/Supervisor will be informed of the situation and organize the cleanup effort. This material must have come from:

- One of our pit/quarry/job sites
- A truck owned by CF, or a hired truck working for CF.

The Fleet shop will then be called to send a technician out to check/repair the vehicle to secure the remainder of theload.

### **25.39 Trucks Reversing and Dumping Standard**

The purpose of this procedure is to install a companywide method for trucks reversing and dumping on site.

### **Procedure**

When a truck (Tandem, Triaxel, or Truck and Dump trailer) is reversing, it should be doing so with the use of a spotter.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

A spotter must be located at the rear of the truck within clear view of the driver at all times. The spotter is responsible for keeping all traffic, pedestrians, and workers clear of the reversing truck.

The spotter will bring the truck to the dump site and check for any overhead objects before the box goes up as will the driver. They will also ensure that the ground is level and sturdy. The full weight of the load will be on that spot and it must be level and not able to move or sink. While the box is rising the spotter should be behind the truck/trailer. NOT BESIDE IT. If the load were to shift or a mechanical failure happen, the box could fall fast and without warning.

The driver of the truck should be in the driver seat of the truck at all times during the operation of the truck. The operation of the truck is when it is being driven, or when it is raising/lowering the box. This is for many reasons:

- The driver can have full and quick control of the box,
- The driver would not be in harm's way if the truck or trailer went over on its side
- The driver would have the protection of the cab if there was a mechanical failure (i.e.: Oil leak, hoist failure, truck PTO pump failure).

It is understood that the driver might have to leave the cab prior to dumping (to open the tailgate, raise the lift axel, check the ground to be sure its level, retract the tarp, etc).

While this is taking place the box is not to be in motion. The truck will be in park with the brakes on. Once the driver has completed their task outside of the truck, then the pump will be engaged and the load dumped.

No spotter is needed if the site has no other activity or the load is for stock piling. The driver must check the site and blind spots for objects and check the ground to be sure it is level prior to dumping.

#### PPE

All spotters and drivers are required to wear a vest, work boots, hard hat, safety glasses, (reflective arm/leg bands for night work only).

#### **25.40 Dump Truck Safety**

- All drivers MUST complete the required pre-qualification documentation
- All drivers MUST complete a circle check and pre-trip inspection before the beginning of work each day.
- Drivers MUST be alert at all times and be aware of congested areas and other construction and mobile equipment. Do NOT park in their path or directly behind any equipment.
- Drivers will receive proper instruction from COMPANY personnel regarding Loading Area, Over-load Dumping Area and Direction to Job Site/Plant location if required. These instructions must be obeyed at all times.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

### HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

- All Drivers MUST remain in the cab of their vehicle while being loaded.
- Personal protective equipment including hard hat, safety boots, reflective vest and eye protection must be worn at times outside of cab without exception.
- Drivers MUST obey all Speed Limits on COMPANY property and slow down near construction operations. Drive according to site and weather conditions.
- Drivers MUST adhere to all Posted Signs on COMPANY property.
- All dump trucks MUST be in safe working condition and equipped with a Back-up Alarms.
- All dump trucks MUST have their load TARPED before leaving the job site.
- Drivers MUST be aware of over head wires and not approach within the minimum distances according to jurisdiction.
- Driver is responsible for care and control of their vehicle
- Avoid dumping on unstable ground
- Moving forward with box in the air after dumping is strictly prohibited.
- Dump truck Drivers MUST not reverse unless there is a spotter in place. Check blind spots and mirrors before moving.
- Drivers MUST comply with all applicable company, legislative and Occupational Health and Safety Regulations.
- Drivers must enter the construction zone with caution and use four way flashers and beacon lights. Only merge into live traffic when it is safe to do so.

#### **25.41 Dump Truck Operators On Site/Quarry/Pit Loading Standard**

The following steps are a guide line to aid in the safe transport of material and protection of workers and the public.

##### **Procedure**

- Ensure mud flaps are in good order
- Ensure load is fully covered
- Ensure tarp is not ripped or torn
- Ensure driver is aware of product and how to properly secure that load
- Ensure load is properly and evenly distributed. If in doubt do not proceed until the load is readjusted
- Compression locks may be used when hauling loose loads (i.e. clay)
- Ensure tailgate is hooked, sealed, and secured
- Ensure side boards are not allowing material to fall out
- Before entering a public roadway ensures that no loose debris is on the truck and no objects are lodged in the dual wheels.
- While inspecting the vehicle wear all appropriate PPE
- Use the peer's keeper theory on site. If another truck is seen with loose material



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## **25.42 Loss of Material on a Public Road**

### **Standard**

The purpose of this procedure is to organize the timely cleanup of lost material on public roadways.

### **Procedure**

When a spill occurs on the way to a jobsite/pit/quarry on a public roadway dispatch is to be notified immediately. The trucking manager/Supervisor will be informed of the situation and organize the cleanup effort. This material must have come from:

- One of our pit/quarry/job sites
- A truck owned by the Company, or a hired truck working for the Company.

The shop will then be called to send a technician out to check/repair the vehicle to secure the remainder of the load.

### **Clean Up**

The cleanup can be performed by hand or any equipment found near the spill that can be easily diverted from its current task. A vehicle with a 360 degree amber flashing or revolving light and four way blinkers must be present TL-18 (Book 7) set up. If this is not possible a TL-19 (Book 7) set up must be in place or other requirements as per local traffic control / accommodation requirements.

Appropriate traffic control / traffic accommodation must be in place to warn the public of roadwork ahead. Any granular material that is larger than the material used for shouldering at the spill site must be removed. Any type of fill or sand product must be removed from the spill site. If the shoulder is paved all material will be removed from the spill site.

If the spill occurs on a large or busy city road, the local authorities will be called. The road crew of those departments will then control the cleanup of that site. These authorities will be called by the trucking manager/supervisor or someone designated by that person only.

If a load of hazardous material is spilt (asphalt or contaminated waste), the trucking manager/supervisor will set up a TL-19 site or call the proper authority. CF will ensure all material is recovered and the site will be cleaned to pre-spill condition to the best of our ability. Safety should be notified immediately to ensure all environmental regulations are adhered to regarding clean-up and reporting requirements.

### **PPE**

All workers are required to wear vest, work boots, hard hat, safety glasses, and reflective arm/leg bands (night work only). A kit will be put together for road side spills which will include Stop/Slow signs, Brooms, Cones, and Flat head shovels.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## **25.43 Operator Competency Checklist**

The Operator Competency Checklist H&S\_FORM\_047 can be used as a tool to review performance and verify knowledge in examining, starting, moving, operating, stopping and parking equipment. The purpose is to make it available for use as a document to record that an equipment operator is aware of the operating requirements of the piece of equipment they are expected to control in a safe manner on our projects.

All evaluators must be competent persons in the use of the equipment and the operations they are observing. Prior to conducting a review using the Competency Checklist the evaluator should verify that the worker has read the operator's manual for the machine they will be using and that they have had any questions answered to ensure that they fully understand it.

The evaluator should also take some time to ask the operator some questions about previous experience and to check that they know what they are talking about.

If after questioning them and having them demonstrate the safe operation of the equipment you have no concerns related to them being able to perform the tasks CF is asking them to do then competency has been displayed.

If you have any concerns, then verification of competency is not possible and the supervisor would need to arrange for additional training through a competent operator as a mentor or another training resource.

## **25.44 Parking Personal Vehicles on Site**

### **Standard**

Parking areas for visitors, workers or others using their personal vehicle will be designated to ensure the safety of the individuals and their property while on the project.

### **Procedure**

When a site has been established, room for parking will be allotted. The Project Manager or site Supervisor will take a quick count of the amount of staff on site and ensure adequate parking areas will be in place. For long term parking area a proper granular base will be installed and graded to allow a level walking surface and multi season use/maintenance. The location of these parking areas may change as the project progresses. But the following criteria will not:

- The staff and visitors will be safe from other vehicle traffic
- Staff will not walk across a major highway to get to work
- Lighting will be provided (where possible)
- The parking area will be maintained (no major ruts, mud holes, etc) Parking area will be large enough

to hold all staff working on site.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

## **25.45 Concrete and Cement Products/ Concrete Mixer Trucks / Pumptrucks and other Associated Equipment**

### **Standard**

To eliminate potential injuries when handling and placing of cement and concrete products. Consult project Waste Management Plan (if applicable)

### **Practice**

- Do not allow cement products to contact your skin. Use personal protective equipment such as rubber boots, gloves, impervious clothing, to protect from prolonged exposure. Wear knee pads if kneeling.
- Do not let skin contact cement products. Many products are abrasive or corrosive and may cause skin irritation and injury.
- Wash skin promptly after contact with products containing cement.
- Keep cement and cement products out of eyes. Eye protection such as safety glasses shall be worn whenever working with cement. Eye exposure to cement can cause serious injury. Always flush eyes with water if cement or the mixture gets into eyes.
- Don't breathe cement dust. Crystalline silica is a major component of cement and can cause serious lung injuries. Use the appropriate respirator. See the respiratory protection requirements in this manual – PPE).

### **Concrete Pouring Operations**

Ensure proper planning is initiated at the start of the job. Good Housekeeping is a must.

- Trip hazards (rebar, cords, forms, screw pin etc.) must be removed or covered
- ALL electrical equipment must be properly grounded including use of GFI electrical outlets. Extension cords and vibrators and other equipment must be maintained, in good condition with appropriate grounding
- Always keep the area to be poured clear of debris.
- Eliminate trip hazards; keep electrical cords away from truck or walking / working surfaces

### **Ramps and Runways**

Construct any ramps or runways before moving concrete in wheel barrows. Ensure that these ramps and runways meet the safety requirements.

For example:

- Design and construct all ramps and runways to meet all loads likely to be subjected
- Install guardrails
- Install Toe boards
- Use appropriate slopes when constructing ramps that allow you to control your load.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

### Working Around Concrete Trucks

- Never walk under the chute
- Never stand next to a truck on an incline (the rotating mixer could tip over or bank could collapse)
- Keep hands and fingers clear of the chute and other nip and pinch point situations
- For clear communication, only have one person direct the concrete truck operator
- Wear a reflective traffic vest when acting as a back up person (signal person) for the concrete/pumper truck

### Concrete Pumping Operations

Pre-pour planning is critical for ensuring a pour goes as planned without unnecessary interruptions. Jobsite conditions such as soil conditions, ground preparation, overhead electrical power lines, adequate access, and egress into the location, Concrete Mixer truck staging areas, traffic control, etc. must be considered prior to the start of this event. A job hazard assessment may help in this situation. See the job hazard assessment section in this manual.

The following should be established:

- Supervisor has been identified
- Power lines have been de-energized or relocated to prevent accidental contact
- Pump operators are to have appropriate clearance from all potential energized power lines before operations begin. **For example (17 feet in USA, in Canada review the voltage to determine the appropriate distance). Note: Always assume the power lines are energized if you cannot confirm the actual electrical situation.**
- Adequate access and egress routes for crew and equipment have been established
- Staging area for Concrete Mixer trucks is essential
- Whenever possible, a level setup area should be established for the pumtruck and Concrete Mixer trucks.
- A clean out area is available for pump and Concrete Mixer trucks
- Adequate lighting established
- Consider the effects of adverse weather conditions on personnel and operations

### Communication

Before work begins, clear lines of communication must be established for (i.e. verbal, line of sight, signals, etc.)

- Ensuring a clear line of sight between the Concrete Mixer driver and pump operator/hopper watch person to ensure operator safety while trucks are backing and pulling out
- Maintaining the proper level of concrete in the hopper
- Ensure workers know how to activate the emergency stop alarm on the truck when a problem arises and the location of the emergency stop switches
- Communications between the pump operator and the placing crew



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Heavy Equipment, Vehicles, P.M.

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 47

# HEAVY EQUIPMENT, VEHICLES, PREVENTATIVE MAINTENANCE

### Hose Selection and Size

Hose selection is most determined by:

- Number of yards per hour to be pumped
- Size of the aggregate/mix design
- Weight of delivery hose
- Ease of use for the hose operator

Be aware, reducing the hose size will increase pressure and could cause plugging.

### Air in the System/Plugs/Kinked Hose

- Air in the system can be the result of the hopper level falling too low, allowing air into the system. The end result is a pocket of compressed air moving through the system and out the delivery hose with a possible violent reaction
- Thorough cleaning is essential. A hose or pipe that has not been cleaned thoroughly will reduce the ability of the concrete to flow smoothly and cause a plug
- Proper mix design and proper mixing are critical for pumping
- Debris from the ready-mix truck can get into the system and cause a blockage that results in plugging
- Extreme caution must be taken whenever a system plugs. If a clamp is removed before the operator backs off the pressure, there can be a violent release of concrete straight up at the person performing the task
- Good communication is the key when the system plugs. A clamp should not be loosened until there is a verbal verification from the operator that the pressure has been backed off
- Kinks in the hose line will prevent the continuous flow of concrete and develop sudden increase of pressure that can violently react when released causing the hose to whip in an uncontrolled manner



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

# FIRE PREVENTION

## PURPOSE

CF is committed to having a fire prevention plan in each workplace to assist workers and the public to respond to an emergency relating to fire.

If ignition is not presented, there will be no fire. This, then is the line of first defense against fire in buildings, Although the National Building code (NBC) contains few restrictions regarding ignition of the building materials, the National Fire Code (NFC) does place limitations on the placement of textiles such as carpets, furniture, and drapery materials. Flammable liquids and gases are special cases and there are provisions for controlling their location. In general, however, it is difficult to predict where combustible materials might be located, particularly in large buildings.

Even buildings constructed of non-combustible materials will almost without exception contain materials that burn under certain circumstances. On the other hand, materials that are designated combustible according to tests may be out negligible significance in fires.

Wood is a good example of a common material for which fire performance is difficult to predict. It ignites if its surface reaches about 300C in the presence of a flame or perhaps 400-500 deg C in its absence, it may also ignite, however, at much lower temperatures if the time of exposure to heat is longer. Charring, a much above 100 C Table 1 defines the terms that are commonly used to describe the ignition process and its various aspects.

## DEFINITIONS

### Ignition

The initiation of sustained combustion.

### Combustibility

Combustibility is a measure of how easily a substance will ignite due to fire or combustion.

Flammable and Combustible: What is the difference?

The distinction between flammable and combustible liquids is determined by how easily they ignite--in other words, their "flash point."

The flash point of a flammable or combustible liquid is the lowest temperature at which it gives off enough vapor to form an ignitable mixture with air and produce a flame when a source of ignition is present:

Flammable liquids have flash points below 100°F and a vapor pressure at or below 40 pounds per square inch at 100°F

Combustible liquids have flash points at or above 100°F. Flammable liquids ignite more readily than combustible ones. Flammable liquids also have the ability to vaporize and form flammable mixtures when exposed to air.

### Ignitability



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## FIRE PREVENTION

The ease with which a material can reach the point of combustion in a specified test regime. The relative ignitability of one material to that of other has meaning only for specified test condition and is not applicable to all test conditions or even to real fire.

### Ignition Temperature

The lowest temperature at which a sample of material will ignite spontaneously without a spark or flame. This value is often used to assess whether a material could have been a source of ignition. For liquids and gases it is reasonably well established characteristic of a substance, but it is less well defined for solids.

### Flash Point

The temperature at which a liquid or solid ignites and sustains combustion when a small flame is brought near the sample surface. There are several methods of measuring flash point, but they are not generally reliable enough to give the same results for the same material. Flash point is used most commonly to describe the hazard associated with storage of liquids; a flash point of 0 deg C, for example, indicates that the material will ignite in the presence of a small flame even when the temperature of the liquid is 0 deg C.

### Lower Explosive Limit (LEL)

The minimum concentration of gas in air at which explosion or flame propagation occurs when a heat source such as a spark is applied. This term is employed in the NFC in relation to ventilation systems in which combustible gases are expected to be a problem; for example, in paint spraying booths, dip tanks for finishing operations, and other special processes involving flammable liquids with substantial vapour pressures.

### Cause of Ignition

Flammable materials may ignite in many ways, some less so. Knowledge of the most important ignition scenarios is essential for designers seeking to reduce the likelihood of fire buildings. The common element is heat transfer. Heat may be transferred by radiation through space, by conduction, upon direct contact with a heat source, or by convection (where air, or other heated fluid, moves to carry heat from source to sample). All ignitions are caused by a version of heat transfer, although other factors may influence them.

### Flames

The most common ignition source is flame. A match flame transfers heat primarily by convection and may be simply represented in laboratory testing. Larger flames, 0.5m high or more, transfer heat primarily by radiative transfer and may ignite objects without coming into direct contact with them. The larger the flame the more probable radiative ignition becomes.

### Hot Surface

Hot surface can also cause fire. A heated metal block can transfer sufficient heat (by conduction) to raise the temperature of some materials above their ignition temperature. The most common case of ignition by this means is probably the kitchen fire in which towel is ignited by contact with a cooking element.

### Sparks



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## FIRE PREVENTION

Sparks generate very high temperatures in a very small space, but except when flammable gas mixtures are involved it is rare that a spark will cause ignition in the absence of other factors.

### Exposure Time

This can be critical. An intense heat source may cause a fire in a very short time, but so may a much less intense heat source over a longer period. Thus, fire in a waste paper basket may ignite a sofa very quickly, but a carelessly dropped cigarette may also cause ignition given more time.

### Configuration

It is difficult to ignite a sample in intimate contact with an efficient heat sink such as the metal hull of a ship in contact with the sea. At the other extreme is an insulated material that may not be able to dissipate heat sufficiently fast to prevent a temperature rise high enough to cause ignition. Thus, spontaneous combustion can occur by mild self-heating caused by very slow oxidation (as in coal dust) or the effects of biochemical attack (as in damp hay).

### Secondary Ignition

The propagation of fire beyond the site of primary ignition will almost inevitably involve secondary ignition of surrounding materials. Now the ignition source is most often larger than before and may present an exposure different from the original. A lit match may not set a room on fire, but if it ignites the contents of a waste paper basket the room may become vulnerable.

When a fire has generated sufficient heat to make the upper reaches of a room very hot, there can eventually be sufficient radiation from this hot layer to ignite essentially all of the remaining un-burnt materials in the area. This is termed flashover. Survival in the room would now not be possible.

### Measurement of Ignition

The results of tests related to other fire properties can provide useful information about the tendency of a material to ignite. In Canada, the surface flame spread test, or tunnel test, is designed to rate materials by their propensity to spread flame or generate smoke. This test also gives information on ignitability. A material with a high flame-spread rating by this test is often easy to ignite. No assurance can be given, however, that the relationship will always hold. The tunnel test results should therefore be used with considerable caution in predicting the ignition behaviour of materials.

Consider, for example, how to rate a large wall hanging of textile fabric. A tunnel test may be of little value since the test uses long, thin samples (7.0 m by 0.66 m) attached horizontally to the roof of a test tunnel. A large flame is applied and the time taken for it to pass down the tunnel is measured. The conditions of burning are most unlike those to be expected of a textile hanging on a wall and probably represent a far less severe condition than the most likely fire scenario.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

# FIRE PREVENTION

## Laboratory versus Scenario Testing

The majority of tests are tied to the definitions of ignition-related characteristics (for example, combustibility, flash point, and lower explosive limit, Table 1). Often it is not possible to identify all the factors involved in practical ignitions. Regulators rely mainly on the results of test procedures that simulate the actual application. These demonstrations, however, can be far more expressive than the more controlled, laboratory test procedures and they are often less informative.

Fire behaviour is influenced by so many uncontrolled variables that prediction is extremely difficult. A useful technique is the worst case scenario. As serious a set of circumstances as can be envisaged is selected and material performance is probability that the material will perform well in less severe fire conditions. The technique, however, encourages expensive overdesign that results in unnecessary use of highly fire-resistant materials.

## Alternative Strategies

In addition to controlling ignition by material selection, the designer may use active or passive fire protection measures, or both.

## Active Fire Protection

Active techniques sense a primary ignition either manually or by automatic means to evoke a response. Automatic sprinkler systems are the most common. Where they are not desirable, substances that quench flames chemically may be used, for example, halon gases or dry powders. Carbon dioxide is also effective, displacing the oxygen necessary to sustain fire.

## Passive Fire Protection

Passive techniques rely on built-in fire protection measures and do not require activation. Fire-resistant compartmentation of rooms, for example, is an important element of the fire protection of buildings.

## Protective Coatings

A very simple technique for protecting combustible material from unwanted ignition is to cover the surface with a non-combustible protection. Metal sheathing is used to protect some combustible insulation products. The wall closest to a wood stove installation should be protected from thermal radiation by a suitable non-combustible cover sheet. A similar form of protection is available for a wide variety of surfaces by applying a chemical coating (intumescent coating) like a paint; it has the useful property of expanding and hardening when exposed to heat, thus presenting a fire-resistant and heat-insulating barrier. This technique is used to protect combustible walls and to afford useful fire resistance to structural columns and non-combustible surfaces made of steel.

## Fire Retardants

The addition of chemicals to combustible materials can control fire behaviour. Fire retardants may simply absorb heat, often by causing the liberation of steam from chemicals that contain water; alumina is often used in this way. Others may form a char through which heat has difficulty passing; many fire retardants containing phosphorus work in this manner. They may enhance melting at a low temperature, thus causing a material to flow away from a heat source; many additives to synthetic polymers have this effect. They may evolve a flame-inhibiting gas; poly (vinyl chloride) is a polymer containing chlorine that on heating liberates hydrogen chloride, a gas that inhibits





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## FIRE PREVENTION

combustion. Lastly, on heating they may assist the transformation of the material to a less flammable material, usually by cross-linking the polymer chains (from which many materials are made) into a hard, thermally resistant solid.

### Material Location

Unwanted ignitions are more than an engineering problem. Their control is a social problem too. Attitudes towards fire differ widely from one country to another. Canada, with one of the world's worst fire loss records, could with advantage adopt some of the principles of fire protection used in other countries. Responsibility for the location of combustible materials is properly that of the building occupants, owners and users, as they are the prime risk takers. In some countries this responsibility is a civic duty, and any dereliction is a punishable offence; the owner of a building that suffers a fire may be prosecuted.

### Conclusion

Ignition prevention remains the primary means of avoiding fires. While no single method of evaluating materials is specifically directed to ignitability, the common fire test methods often provide useful indication of successful ignition control.

The damage caused by unwanted ignition can be minimized by appropriate choice and use of materials. Where caution outweighs cost, protection against the worst of all conceivable potential ignition cases should be considered. If material choice has been exhausted as a method of control, active and passive fire protection measures must be considered. The avoidance of fire is a social responsibility, and the cooperation of building occupants is the most powerful asset.

The following is a description of the three degrees of fire loading within the occupancy.

**Light (Low) Fire Load:** An Occupancy in which Class A combustible materials including furniture, window treatments and its contents is of minor quantity. Small amounts of Class B flammable liquids such as duplicating and cleaning solvents are included provided that they are kept in closed containers and stored properly.

**Ordinary (Moderate) Fire Load:** An occupancy in which Class A combustibles, Class B flammable liquids and Class C energized electrical equipment are in greater amounts than expected under a low hazard. These locations include dining areas, storage areas, parking garages and assembly halls.

**Extra (High) Fire Load:** an occupancy in which the total amount of Class A combustibles, Class B flammable liquids and Class C energized electrical equipment present is over and above those classified as moderate hazard. These occupancies and areas include laboratories, cooking areas, trade shops and warehouses.

### 24.4 Fire Tetrahedron

In order to understand how fire extinguishers work, you first need to know a little bit about fire.

Four things must be present at the same time in order to produce fire:

1. Enough oxygen to sustain combustion,
2. Enough heat to raise the material to its ignition temperature,



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Fire Prevention**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## **FIRE PREVENTION**

3. Some sort of fuel or combustible material, and
4. The chemical, exothermic reaction that is fire.

For many years the concept of fire was symbolized by the Triangle of Combustion and represented, fuel, heat, and oxygen. The fire triangle was changed to a fire tetrahedron to reflect this fourth element. A tetrahedron can be described as a pyramid which is a solid having four plane faces. Essentially all four elements must be present for fire to occur, fuel, heat, oxygen, and a chemical chain reaction. Removal of any one of these essential elements will result in the fire being extinguished.

The four elements are oxygen to sustain combustion, sufficient heat to raise the material to its ignition temperature, fuel or combustible material and subsequently an exothermic chemical chain reaction in the material. Each of the four sides of the fire tetrahedron symbolizes the Fuel, Heat, Oxygen and Chemical Chain Reaction.

Theoretically, fire extinguishers put out fire by taking away one or more elements of the fire tetrahedron

Fire safety, at its most basic, is based upon the principle of keeping fuel sources and ignition sources separate.

Take a look at the following Diagram, called the “Fire Tetrahedron”

Oxygen, heat, and fuel are frequently referred to as the “fire triangle.” Add in the fourth element, the chemical reaction, and you actually have a fire “tetrahedron.” The important thing to remember is:

- Take any of these four things away, and you will not have a fire or the fire will be extinguished.
- Essentially, fire extinguishers put out fire by taking away one or more elements of the fire triangle/tetrahedron.
- Fire safety, at its most basic, is based upon the principle of keeping fuel sources and ignition sources separate.

## **PROCEDURE**

### **Fire Emergency Procedure**

1. If You Discover a Fire
2. Stop all work. Alert everyone in the area.
3. Designate someone to call 911 or the applicable Fire Department phone number.
4. Only attempt to extinguish the fire if it is safe to do so, or as a means of escape from the fire area.
5. Leave the fire area, closing all doors behind you, (if possible). Always using the nearest safe exit.
6. Notify a Supervisor.
7. Stand By to assist the Fire Department.

### **Evacuating Work Areas (Buildings, Trailers, Site)**

When being requested to evacuate a work area:

- Stop all Work
- Shut down all equipment (if possible)
- DO NOT return to pick up your belongings
- Use stairs - Do not use elevator



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Fire Prevention**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## **FIRE PREVENTION**

### **Procedure after Evacuation**

The Supervisor is responsible for ensuring that all workers are accounted for. Workers are to assemble at pre-planned staging area.

A roll-call will take place when all workers are assembled. This will determine if there are any missing person(s).  
Procedure for Calling the Fire Dept.

1. Go to the nearest safe phone and call "911" or the applicable emergency phone number.
2. Ask for the Fire Dept. and give them the following information:
  - a. Name First and Last.
  - b. The company's name.
  - c. The location of the site.
  - d. Details regarding the fire.
  - e. Wait for further instruction if it is safe to do so.

### **Controlling and Identifying a Fire Hazard**

All workers are responsible for reporting, controlling, or identifying a fire hazard on all CF workplaces. Consider the following:

- No smoking around flammable liquids.
- Do not obstruct access or egress roads. (Safe evacuation routes are to be clear).
- Do not block fire cabinets or fire suppression equipment.
- Return spent fire extinguishers to your Supervisor for recharging.
- Reports are to be directed to Supervision for review.

### **Access for/to Fire Fighting Equipment and Vehicles**

In order to provide a safe and unobstructed Fire Department access to the construction site, vehicles or equipment shall not be parked in fire routes or near fire hydrants unless approved by the Supervisor.

In all offices, industrial settings and construction projects:

- Ensure that all exits are clear of material and easily accessible.
- Ensure that all Fire hose cabinets, stand pipes & wall mounted extinguishers are easily accessible and not blocked with material or machinery (clear within 1 m. around and clear path to device).
- Ensure annual inspections of fire extinguishers.
- Ensure all equipment has a minimum 5lb abc mounted on equipment in an accessible location.

The National Fire Protection Association (NFPA) classifies fires into five general categories (U.S.):

1. Class A fires are ordinary materials like burning paper, lumber, cardboard, plastics etc.
2. Class B fires involve flammable or combustible liquids such as gasoline, kerosene, and common organic solvents used in the laboratory.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## FIRE PREVENTION

3. Class C fires involve energized electrical equipment, such as appliances, switches, panel boxes, power tools, hot plates and stirrers. Water can be dangerous extinguishing medium for class C fires because of the risk of electrical shock unless a specialized water mist extinguisher is used.
4. Class D fires involve combustible metals, such as magnesium, titanium, potassium and sodium as well as pyrophoric organometallic reagents such as alkyllithiums, Grignards and diethylz. These materials burn at high temperatures and will react violently with water; air, and/or other chemicals. Handle with care!!
5. Class K fires are kitchen fires; this class was added to the NFPA portable extinguisher Standard 10 in 1998. Kitchen extinguishers installed before June 30, 1998 are "grandfather" into the standard. This extinguisher is a wet chemical class.

### Fire Extinguishers

A worker is not required to fight a fire. Only if his/her life is in danger should he/she proceed to try and extinguish a fire.

There are two points to remember before using a fire extinguisher to put out a fire:

- Know what is burning.
- Know the class of fire extinguisher that is required.

### Fire Extinguishing Equipment Standard

All workers shall be familiar with the use of fire extinguishing equipment in the work area.

### Procedure

- Placement of Extinguishers
  - Class A
    - one 2 lb extinguisher for every 300 m<sup>2</sup> (3,000 ft<sup>2</sup>) of building area
  - Class B
    - One 10 lb extinguisher stored within 15 m (50') of more than 5 gallons of flammable liquid (including paint)
    - One 20 lb extinguisher stored within 3 m (10') or more than 270 litres (60 gallons) of flammable liquid (including paint)
  - Class C
    - One 10 pound CO<sub>2</sub> extinguisher near major electrical installations
    - Fixed Carbon Dioxide systems in computer rooms, generating stations, etc.
  - Class D
    - System must be suitable dry powder for specific combustible metal found in the workplace.
  - Class ABC
    - Class B criteria to be followed where ABC extinguishers are needed
- It is most common to place fire extinguishers just inside the entrance to a room or area.
- Extinguishers of the Class B type shall be 7.5 m to 15 m (25' to 50') from gasoline and diesel fueling areas.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

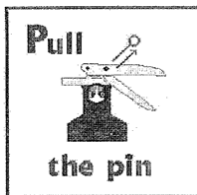
# OF PAGES: 12

### FIRE PREVENTION

- Extinguishers shall be found within 15 m (50') of welding and burning operations.
- Extinguishers shall be mounted no more than 1.5 m (5') above floor in buildings with clear access and shall be clearly marked.
- Fire extinguishers shall be visually inspected monthly.
- Once an extinguisher is used or the pressure falls, it shall be recharged.

#### How to Use a Fire Extinguisher

It's easy to remember how to use a fire extinguisher if you can remember the acronym PASS, which stands for Pull, Aim, Squeeze, and Sweep.



Pull the pin.  
This will allow you to discharge the extinguisher.



Aim at the base of the fire.  
If you aim at the flames (which is frequently temptation), the extinguishing agent will fly right through and do no good. You want to hit the fuel.



Squeeze the tip handle or lever.  
This depresses a button that releases the pressurized extinguishing agent in extinguisher.



Sweep from side to side until the fire is completely out. Start using the extinguisher from a safe distance away then move forward. Once the fire is out, keep an eye on the area in case it re-ignites.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention






PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### FIRE PREVENTION

CLASSES OF FIRES	TYPES OF FIRES	PICTURE SYMBOL
<b>A</b>	Wood, paper, cloth, trash & other ordinary materials.	
<b>B</b>	Gasoline, oil, paint and other flammable liquids.	
<b>C</b>	May be used on fires involving live electrical equipment without danger to the operator.	
<b>D</b>	Combustible metals and combustible metal alloys.	
<b>K</b>	Cooking media (Vegetable or Animal Oils and Fats)	



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fire Prevention

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## FIRE PREVENTION

### Portable Fire Extinguisher Inspection and Maintenance Procedure Standard

To establish standard procedures for the inspection and maintenance of portable fire extinguishers.

#### Policy

Portable fire extinguishers will be inspected and maintained to ensure that they are properly located and operational in accordance with NFPA standards.

#### Procedure

Portable fire extinguishers will be inspected monthly. The inspection should include the following:

- Extinguishers are located in their designated location, are secured properly and are the proper type.
- Extinguishers are not obstructed with respect to access or visibility.
- Extinguishers are examined for obvious physical damage, corrosion, leakage, or clogged nozzles.
- Legible operating instructions are on the extinguisher nameplate facing outward.
- Seals and tamper indicators are not broken or missing.
- Pressure-gauge readings or indicators are in operable ranges.

Annual maintenance will involve a thorough examination of the fire extinguisher shell and its external mechanical parts. The maintenance will include the following:

- All monthly inspection items.
- Inspection of the hose and nozzle for cracks, blockages, or other damage.
- Inspection of extinguisher shell for corrosion, dents, or other damage.
- Carbon dioxide extinguishers are weighed to ensure no weight deviation greater than 10%.

When inspection or maintenance of any extinguisher reveals a deficiency in operating condition, the following corrective actions are to be taken immediately.

- A spare extinguisher of the same type and equal or greater rating shall replace the extinguisher.
- Defective extinguishers are to be marked as such and placed in an appropriate place until repair and/or recharging is performed. A defective tag to identify problems will be attached.

Documentation of inspection and maintenance will be provided by maintaining the following records:

- A fire extinguisher inspection record tag is attached to each extinguisher and provides the following information.
- The date the extinguisher was inspected.
- The condition of the extinguisher.
- The initials of the person performing the inspection.

The fire extinguisher inspection record must indicate the date of the last charge; recharge and the last date of hydrostatic testing must be recorded.

If inspections and maintenance procedures are performed by outside vendors under contracts, an CF Rep will obtain a copy of the annual inspection and maintenance report from the vendor and submit a copy of this report to the Safety Advisor by the end of contract and fiscal year to ensure compliance.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Fire Prevention**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

# **FIRE PREVENTION**

## **Temporary Heat Standard**

Temporary heat shall be arranged so that no danger of uncontrolled fire exists.

### **Procedure**

- Combustibles such as tarpaulins, wood and flammable liquids will be positioned no closer than 3 m (10'). If combustibles are in the direct flow of heat, no closer than 6 m (20').
- Safety features on the heaters must be operating properly. Contact the manufacturer/supplier for further information.
- Heaters cannot be set on combustible materials and must be protected from damage due to overturning.
- The temptation is great to locate heaters near a means of access/egress because fresh air is available for combustion. It is against the law to restrict access/egress with a portable heater.
- Fuel lines must be guarded to prevent accidental damage.
- When open flame heaters are operating continuously, a designated person will be assigned to inspect it periodically.
- A viable means of extinguishing a fire must be readily available.
- Familiarize yourself with the fuel source emergency shutoff.
- Any temporary heating system requiring the use of propane requires special training in propane handling (Where legislated) Please contact your H&S Department for further details.
- Open flame heaters shall not be used as temporary heat in an occupied building.

Note: Temporary heat must be by means of an approved heating device. Equipment such as hand held torches etc. are not an acceptable means for providing temporary heat.

## **Smoking Near Flammables**

Smoking near or during the dispensing of any flammable materials can have a devastating effect to a worker and your work place. It is imperative for workers who smoke to adhere to the following requirements.

1. Site specific or client Workplace Smoking Policy.
2. Smoking Policy.
3. No Smoking in all Identified areas. This includes all buildings, offices, site trailers,
4. building roofs, storage containers and any vehicle/equipment rented or owned with a cab.
5. Never smoke during a refueling operation or within 10 feet of a Fuel Storage area. Examples; Compressed Gas storage, bulk storage.

## **Burning and Forest Fire Prevention**

Burning of construction refuse including but not restricted to trees, branches, waste wood, or construction materials shall only be undertaken in accordance with the conditions and requirements of a burning permit issued by the applicable authorities and shall, in all cases, comply with the requirements of applicable forest fire prevention practices.

Any burning shall comply with applicable fire codes for the area.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Public Safety**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

# **PUBLIC SAFETY**

## **PURPOSE**

CF is fully committed to ensuring that public health and safety is not endangered or put at risk by any facet of CF's work. Workers are familiar with safe work procedures and potential hazards; the public is not. Therefore, CF shall take all reasonable precautions necessary to assure public safety in our workplaces.

CF shall also ensure that workplaces, activities, and equipment are protected from public access. Good security and public protection measures ensure that both the public and CF workers remain healthy and safe.

## **DEFINITION**

### **Public**

Public is defined as all persons and property not affiliated with the construction project or workplace.

## **SCOPE**

### **Public Relations**

Depending on the location of the workplace and the nature of the work being performed; relations with the public will vary. The prime function of public relations is to provide information to assure the public of CF's concern for public safety and respect for public concerns.

The public is commonly concerned with:

- Noise
- Dust
- Inconvenience
- Vibrations
- Housekeeping (workplace cleanliness)
- Environmental issues
- Hazards such as chemical spills, fumes etc.
- Transportation in and out of the project
- Public and private work area separation
- Mud tracking on public ways
- Appropriate signage with clear direction
- Asphalt and concrete overspray

All public relations shall be handled by management at the head office or a specifically designated representative.

Methods of public information handling may include:

- Media notices
- Public meetings
- Mail-out or drop-off letters or notices

The H&S Department shall be notified immediately of any public liability claim.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## Section: Public Safety

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1


# OF PAGES: 6

## PUBLIC SAFETY

### Public Hazard Control Chart

Guidelines to ensure pedestrian safety and access through construction work.

Maintenance of a Clear Accessible Path	Temporary Ramps
<ul style="list-style-type: none"> <li>Equipment, debris, construction material or vehicles should not obstruct the walkway</li> <li>Ensure the walkway is free of slippery surfaces as a result of our construction</li> <li>Temporary sidewalk closures require alternate routes that do not endanger the public</li> <li>Flag persons may be necessary for safe passage</li> </ul>	<ul style="list-style-type: none"> <li>Sides of a ramp shall be protected where there is any drop off</li> <li>Transition between ramps and street surface will be smooth to prevent a trip hazard</li> <li>Ramps need to meet snug with existing surfaces to avoid gaps</li> <li>Ramps must have a minimum width and maximum slope. See local jurisdiction</li> </ul>
Signs, Barricades and Fencing	Identification of Safe Path of Travel
<ul style="list-style-type: none"> <li>Construction barriers are to be maintained in a sound, neat and clean condition</li> <li>Fencing may be required to separate construction from the public. Consult Safety Dept. for specifications.</li> <li>Excavations left unattended shall be protected with a barrier fence. A protective cover over the excavation may also be necessary</li> <li>Signs are to be clearly visible identifying the hazard to the public.</li> <li>Jersey barriers may be necessary along roadways</li> <li>Flashing lights may be required at night time</li> </ul>	<ul style="list-style-type: none"> <li>The pedestrian path of travel must be clearly defined</li> <li>A controlled crosswalk is to be used to reroute public safely to the other side.</li> <li>School areas will require additional planning and communication</li> <li>Remember that disabled pedestrians must also use this access</li> <li>Set up cones, barrels, barricades or fencing to reroute pedestrians safely around the construction activity.</li> <li>Avoid rerouting public onto an active roadway unless it's protected with a traffic plan</li> </ul>
Surfacing of Pedestrian Walkways	Restoration of Pedestrian Routes
<ul style="list-style-type: none"> <li>Any change in level exceeding <math>\frac{1}{4}</math> h in height needs to be beveled at 45 degrees to prevent tripping hazards</li> <li>Closed trenches, temporary paving surfaces, walking surfaces and steel plates will have a firm walking surface made even</li> <li>All covers must be able to support the intended load being applied to it.</li> <li>Post signs whenever possible to warn public of temporary repair.</li> <li>Ensure suitable materials are used for the intended path</li> </ul>	<ul style="list-style-type: none"> <li>Temporary ramps are to be removed as soon as permanent ramps are completed.</li> <li>After work is completed, surfaces shall be restored free from all ridges, openings and rough edges.</li> <li>Seasonal weather may dictate when restoration can be completed. Periodic maintenance may be required until restoration can be completed.</li> </ul>

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Public Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## PUBLIC SAFETY

**Remember: Protect the public from all construction hazards.**

If someone from the public reports an injury or damage as a result of our construction activity, report it immediately to the H&S Department.

### Project Security

The extent of project security will vary with the circumstances. Security shall be organized at the beginning of the project and monitored to ensure security is adequate through completion of the project.

Measures may include, but are not limited to:

#### Equipment/Tools


- Away from public access
- Storage areas/containers, bins, boxes
- Fenced and secured
- Area well illuminated

#### Heavy and Mobile Equipment

- Keys removed from equipment
- Vehicles locked
- Protective covering(s) over glass panels
- Key security (i.e., not just locking keys in portable office but possibly having two individuals from the project take keys home at night)
- Remove tire from generator, compressor and arrow board to prevent theft
- Return rentals when they are no longer required
- Have tools/equipment sent to a central lay down area on weekends
- Do not leave equipment unattended and running

#### Security Patrols

- Public Protection – emergency panel posted with phone numbers
  - Police
  - Fire protection
  - Ambulance
  - Hospital
- Private Protection - private security:
  - If private security services are required only fully qualified, bonded, and licensed companies shall be used. A certificate of insurance and a hold harmless agreement must be obtained. Corporate shall provide any agreements to be used with private security
  - companies. Corporate shall also provide a clear statement regarding dog patrols, police notification, intruder response, and other security policies. These policies shall be established on a project by project basis.

 <b>HEALTH, SAFETY &amp; ENVIRONMENTAL PROGRAM</b>	<b>Section: Public Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 6	

## PUBLIC SAFETY

- Project security is considered very important as poor security may allow the public to place itself at risk or in danger.

### Theft Protection

Equipment theft is a major source of loss to all contractors. While insurance may offset some of the financial costs of the loss, many uninsured costs are paid by all contractors. These costs include:

- Insurance deductibles,
- Replacing depreciated items with new equipment,
- Production delays,
- Paperwork and time in reporting
- Replacing stolen equipment

Most thefts occur in the evening, usually within an hour after the workday has ended, or on weekends. Most thieves will not try to steal if they cannot enter the site, load the equipment and be clear of the site within 10 minutes.

Good planning and programming are essential to construction – site security. Methods to minimize theft:

- Establish an inventory – control system for all equipment and tools
- Implement a documented check – out/check- in system for all tools and equipment
- Lock and immobilize equipment during non-working hours
- Lock and protect with an alarm system
- Install padlock shields on storage trailers to make padlocks more tamper resistant to bolt cutters
- Stamp tools and equipment

### Methods to maximize theft protection:

- Avoid storing equipment off premises overnight unless it is in a secured area. If equipment must be stored overnight, consider leasing or renting space at a secure facility
- In high crime areas, consider hiring a security guard, or surveillance systems. Watch dogs can be used when accompanied by a trained handler
- Enclose equipment storage area with a security fence. Good security is an essential element in good site security
- Ask for a driver's license and obtain a copy whenever anyone outside of the project has approached you to remove equipment
- Keep equipment storage areas well-lit and free of hiding places such as trees, shrubbery, buildings or other visual obstructions. Nighttime lighting is essential. Lighting should be elevated to eliminate dark areas
- Ask equipment rental companies if their equipment has a tracking device installed
- Install quality fencing with barb wire where necessary
- Have alarms installed on fencing and buildings

## RESPONSIBILITIES

All management is responsible to ensure reasonable precautions for public safety. The degree of public protection depends on the location and nature of work being performed. Public protection shall be considered for each individual project and an appropriate program developed. Common public exposures and controls includes:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

**Section: Public Safety**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

**PUBLIC SAFETY**

<b>Exposure</b>	<b>Control</b>
Traffic	<ul style="list-style-type: none"><li>• Cones</li><li>• Barricades</li><li>• Warning signs</li><li>• Traffic control persons</li><li>• Traffic detours</li><li>• Lane controls</li></ul>
Pedestrian	<ul style="list-style-type: none"><li>• Fencing of job site</li><li>• On-site security</li><li>• Closing sidewalks / temporary walkways</li><li>• Minimize public exposure to falling material / overhead protection</li><li>• Public way protection</li><li>• Physical barriers around utility chambers, trench/excavation</li><li>• Restrict access by way of signage and barriers around directional drill and boring equipment.</li></ul>
Public During Peak Hours	<ul style="list-style-type: none"><li>• Work days</li><li>• Job site near financial centers or business districts</li><li>• Rush hour traffic affected by job</li><li>• Weekends and off hours requiring security or controls near:</li><li>• Recreation areas</li><li>• Residential areas</li><li>• Major access routes</li></ul>



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Public Safety

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 6

### PUBLIC SAFETY

Utilities - Underground and Overhead	<ul style="list-style-type: none"><li>• Locating and marking</li><li>• De-energizing or moving lines</li><li>• Shoring and blocking</li><li>• Emergency measures</li><li>• Liaison with utility companies</li></ul>
Materials Being Delivered to Jobsite	<ul style="list-style-type: none"><li>• Require vehicle and pedestrian traffic controls</li><li>• Limit delivery times to non-rush hours if possible</li><li>• Establish specific delivery locations – minimize exposure to public</li></ul>
Public Affected by Construction Activity	<ul style="list-style-type: none"><li>• Posting signs in highly conspicuous areas</li><li>• No trespassing</li><li>• Hard hat, safety footwear, ear &amp; eye protection, etc.</li><li>• Traffic control signs meet federal, Provincial/state and local code legislative requirements</li><li>• Sidewalk closures</li><li>• Signal person</li></ul>
Ground Works	<ul style="list-style-type: none"><li>• Shoring of excavations</li><li>• Underpinning of adjacent structures</li><li>• Review liability and property damage insurance for proper coverage</li><li>• Use water trucks or other means to reduce dust</li><li>• Ensure all sewers, storm drains, lakes, rivers and stream are protected from construction activity</li><li>• Communicate with land owners concerning crops</li></ul>



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Subcontractors and Suppliers**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

# **SUBCONTRACTORS AND SUPPLIERS**

## **PURPOSE**

CF is committed to cooperating in safety, accident control and responsible environmental practices with all Subcontractors and Suppliers. CF is concerned that those accidents involving Subcontractors or Suppliers can injure workers, have adverse environmental effects, cause job disruptions, and delays that impact CF.

## **SCOPE**

### **Subcontractor Environmental Health and Safety Requirements**

All subcontractors, suppliers, and other contractors employed on a CF project are responsible to ensure all work is carried out in compliance with, but not limited to the Occupational Health and Safety Act, CF's H&S Policies, and Client site specific policies as required.

### **Noncompliance**

In the event of non-compliance with any of the above mentioned policies the following may occur:

- Subcontractors and all related work by their subcontractors/suppliers may be suspended
- Workers, supervisors, and contractors may be removed from the site
- Contractors may be subject to monetary back charges that are associated with the delays and completion of the work
- Be responsible for any fines or charges levied against CF due to the legislative noncompliance
- Notifications of non-compliance may be documented on the Subcontractor Clean Up Notification (H&S\_FORM\_028) or the Subcontractor/Supplier Health and Safety Order to Comply (H&S\_FORM\_029).

### **Documentation & Records of Training (ROT)**

All subcontractors and suppliers must provide (at a minimum) the following documentation prior to arriving onsite:

- Health and Safety program
- Certificate of good standing of insurance or the required compensation authority
- Provide proof of workers compensation coverage in applicable jurisdictions
- All MSDS sheets for products expected to be used onsite during the scope of work
- Any forms as required for proof of registration with the applicable labour authority
- Proof of insurance- WSIB coverage
- Complete the Health and Safety Prequalification assessment
- Site specific fall protection plan, or other specialized plans as required.

All contractors must supply proof of training for all workers prior to starting work. Workers unable to provide valid records of training will not be permitted to work. Examples of such documentation includes:

- Trades specific qualification
- WHMIS
- Fall Protection
- Specific Elevating Platform Training
- First Aid
- Confined Space
- Traffic Control
- Operating License
- Other specific training as required



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Subcontractors and Suppliers**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### **SUBCONTRACTORS AND SUPPLIERS**

- CF specific workplace violence and harassment

#### **Personnel Obligations**

All subcontractors are to ensure that CF is aware of all individuals onsite performing work at any given time. Subcontractors are obligated to ensure that there is a competent supervisor onsite to ensure all work is conducted in a safe manner and in compliance with CF H&S policies and applicable legislative requirements. All contractors, subcontractors, and suppliers are responsible to ensure all workers performing work are a competent worker, and ensure they have training to adequately perform their work and other functions as applicable.

Should a worker from a subcontractor be selected by the workers to participate in any joint health and safety committee, worker trades committee, or other safety committee as required, they are to ensure full cooperation with the required process.

#### **Accident / Incident / Safety Opportunity**

All subcontractors must notify CF of any accident, incident, or Safety Opportunities that occurs on the day of the event.

- All contractors must conduct an accident/incident investigation and submit an adequate report within 24 hours.
- The report must detail the cause of the accident/incident/safety opportunity, underlying causes that contributed and appropriate corrective actions that will be implemented to prevent recurrence.
- Contractors must have an active Return to Work Program (modified duty) for any individual that may sustain an injury.
- Be held liable for any damage or cost associated with or arising from the incident.

#### **Subcontractor Accident / Incident Occurrence Notice**

Accidents / incidents that occur in CF workplace, that are a result of, or involve, contractors and no CF employees or property, require a documented report be submitted to CF within 24 hrs.

#### **Guidelines for Use**

- The Subcontractor Accident / Incident Occurrence Notice is used to document and identify key information regarding the incident for internal communication prior to the submission of a formal report from the contractor.
- This report may also be used to communicate the fundamental information regarding a subcontractor event to a client or Constructor / Prime Contractor where required.

**Note:** Subcontractors are not permitted to complete an investigation report using the standard CF reporting forms or format.

#### **Training & Orientation**

All contractors, subcontractors, and suppliers are to participate in any orientation or training as may be required. Such training may include:





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Subcontractors and Suppliers**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### **SUBCONTRACTORS AND SUPPLIERS**

- H&S Program training
- Site orientation
- Specialized site, or in plant programs including, but not limited to: hazardous substances, fall protection, confined space, infection control etc.

#### **Personal Protective Equipment (PPE)**

All contractors, subcontractors, and suppliers shall wear the mandatory PPE required on any project. At a minimum, all individuals shall wear:

- Basic clothing (full legged pants, and shirts with a sleeve)
- CSA/ANSI approved work boots/shoes as applicable.
- CSA/ANSI approved eye protection
- CSA/ANSI approved head protection
- Any other PPE as deemed necessary by the project or CF

#### **Equipment, Tools, Machinery**

All contractors, subcontractors, and suppliers are responsible to ensure all equipment is safe for use. All equipment and machinery shall be operated in accordance with the applicable legislative requirements, manufactures guidelines, safe work practices and site-specific policies. Any deviation of practice must be approved by a certified engineer, or approval from the manufacturer in writing.

All equipment, tools and machinery shall be maintained as per manufacturer's instructions. All equipment and machinery shall be safe for use, and in good operating condition. Any vehicles such as elevating work platforms, zoom boom, cranes, etc. must have:

- Operators Manual
- Maintenance records
- Daily inspection records
- Installation inspection by a qualified person if applicable

Any piece of equipment, machinery, or tool deemed not fit for use by CF will be isolated, tagged, and or removed immediately from site.

#### **Safe Work Procedures & Job Safety Analysis (JSA)**

Contractors will be required to provide a safe work procedure and JSA for any high-risk operation, or operations designated by CF. JSA'S must be supplied to and reviewed by CF before the work may commence. Operations requiring a JSA includes, but are not limited to:

- Confined Space Entry
- Lock & Tag Out procedures
- Use of highly toxic products (i.e. Solvents & oil base paints)
- Live electrical work
- Hoisting and rigging operations
- Working near overhead power lines



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Subcontractors and Suppliers**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### **SUBCONTRACTORS AND SUPPLIERS**

Any such operation not able to provide such documentation upon request will be halted until they are in compliance with site policies.

#### **Field Level Risk Assessment (FLRA) & Tool Box Talks**

All contractors, subcontractors, and suppliers will be required to perform a Field Level Risk Assessment on a daily basis. The FLRA assessment will be provided to CF and must be available upon request.

All contractors, subcontractors, and suppliers must complete tool box talks on a weekly basis. Tool box talks may be on contractor specific work practices, or mandatory topics issued by CF regarding site specific issues.

#### **First Aid & Emergency Procedures**

All contractors, subcontractors, and suppliers are responsible to ensure all regulations and policies regarding First Aid are adhered to. All contractors must have adequate First Aid supplies, and an approved person capable of performing First Aid.

All contractors, subcontractors, and suppliers are responsible to be familiar with, and adhere to emergency procedures.

**By no means do these policies and obligations forfeit any additional obligations required by the Occupational Health and Safety Act and other legislated requirements as applicable.**

**CF orientation to the Subcontractor/Supplier does not relieve the Subcontractor/Supplies of their obligation as an employer of their own employees to comply with all pertinent legislative requirements.**

#### **Subcontractors/Suppliers to Supervise their Employees**

All Subcontractors/Suppliers must appoint a competent Supervisor who is employed by the Sub-Contractor to supervise their work.

**Note:** The number of Supervisors required is usually determined by a ratio of the number of workers per Supervisor. See applicable H&S legislation. If you need assistance, contact the H&S Department.

#### **Subcontractor / Suppliers Prequalification Policy Statement**

CF is committed to cooperating with all subcontractors to ensure a safe and healthy working environment. CF recognizes that an evaluation process is required to ensure that all subcontractors and suppliers working for CF are capable of performing to any safety, health, and environmental standards that may be required.

#### **Standard**

All subcontractors, suppliers, and other contractors employed on a CF project are responsible to ensure all work is carried out in compliance with, but not limited to the occupational health and safety act, CF H&S Policies, and client specific policies as required.

Management will ensure that any contracts or agreements entered into with subcontractors or suppliers are capable of performing to standards as required.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Subcontractors and Suppliers**

PREAPRED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

## **SUBCONTRACTORS AND SUPPLIERS**

### **RESPONSIBILITIES**

#### **Management**

Management is responsible to ensure that subcontractors and suppliers are evaluated / assessed prior to approving any work or agreement.

Agreements and contracts will only occur with subcontractors that have been given approval by CF Purchasing Department.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Working at Heights**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

# **Working at Heights**

## **PURPOSE**

All work at heights must be completed in a safe manner. CF recognizes that training, planning and the proper equipment are fundamental in completing work at heights safely. CF will ensure workers have adequate training on the equipment and devices used while working at heights, and that the work has been assessed for hazards and controls have been put in place.

## **SCOPE**

The following requirements will be implemented when working from heights. Fall Protection requirements may vary between jurisdictions and work location. Consult the supervisor.

CF is committed to completing work at heights safely and will ensure that when working at heights the requirements set forth by the applicable legislative requirements are met or exceeded.

Fall Protection is the means or measures taken to ensure work is completed safely while working at height. This can include but not be limited to the use of guardrails, ladders, fall arrest systems, travel restraint, scaffolding or working on elevating work platforms.

A means of fall protection must be used when a worker may fall:

- A vertical fall of 3m (10') or more may occur;
  - Note: In some jurisdictions and client workplaces rules are observed with a 6' height requirement. Consult with the H&S department for further information and instruction.
- A fall from a lesser height involves an unusual risk of injury, e.g. working above a tank, exposed re-bar or operating machinery, etc.;
- Operating elevating platforms

## **General Information**

- Travel Restraint Equipment must be CSA approved. Travel Restraint Equipment, and Shock-Absorbing Lanyards and Lifelines must be attached to a secure part of the project.
- Scaffolding shall be erected by qualified workers and shall be erected as designed by the manufacturer.
- Where use of scaffolding is not possible, Fall Arrest Equipment will be used. Fall Arrest Equipment shall be CSA approved and shall be used in accordance with manufacturer instructions. Only one worker per lanyard and safety line is permitted.
- Materials and tools being stored must be 3m (10') back from the edge except for tools being used and working quantities of materials. Proper lift ropes and containers are to be used for hoisting tools and equipment.
- Signs and barricades shall be used to notify and inform workers and the public of overhead work. If it is not possible to barricade as above, a watchman will be posted.
- 100% fall protection is required on elevating work platforms. A full body harness and lanyard will be used while on an elevating work platform. The system used will be arranged so that the worker is not capable of striking the ground in the event of a fall.
- Instruction and implementation of these procedures shall be enforced by site supervision.
- Some typical fall hazards are:
  - Openings in elevated floors;
  - Erecting structural steel and equipment at heights;



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Working at Heights**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### **Working at Heights**

- Working above water or other liquid;
- Working close to the edge of an elevated floor or roof, or etc.

### **RESPONSIBILITIES**

#### **Supervisors**

It shall be the responsibility of the Supervisor to ensure that:

- The Fall Arrest Rescue Plan is current and specific to actual operation. Long duration projects must review the plan annually at a minimum;
- A Fall Protection Plan is implemented that meets the policy criteria;
- All workers that require a Fall Protection Plan are instructed in proper execution of the plan; and
- A copy of training documentation will be filed at the project

#### **Sub-Contractors**

It shall be the responsibility of Sub-Contractors to ensure that:

- Ensure all workers under his/her authority receive Fall Protection instruction;
- Ensure training documentation is forwarded as requested;
- Ensure that the required Safety Equipment is available;
- Ensure that required Safety Equipment is regularly inspected and maintained; and
- Provide an inventory of Fall Protection Equipment available, if required and ensure all workers under his/her authority adhere to the project Fall Protection Plan.

#### **Workers**

Workers are responsible to:

- Receive instruction, and adhere to the Fall Protection Plan/Procedure and report to the Supervisor any non-compliance of the Fall Protection Plan/Procedure; and
- Report falls resulting in the worker's fall being arrested
- Ensure the fall arrest system in use prevents them from hitting the ground or surface below

#### **Fall Protection and Working Alone**

CF requires a minimum of 2 people to be present at all times when the use of a Travel Restraint or Fall Arrest System is required (buddy system).

#### **Guardrails**

Whenever possible, danger areas shall be protected by properly constructed guardrails.

- Guardrails shall be constructed around any open-sided floor, working platform, runway, walkway, or other surface to which a worker has access.
- Guardrails must be between 0.96 - 1.1m (38"-42") high or as per the local jurisdictional requirements.
- Guardrails shall have an intermediate rail and toe boards.
- Railings must be attached to the inside of posts.
- Posts must be spaced less than 2.4m (8') apart.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Working at Heights**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### **Working at Heights**

- When Guardrails are temporarily removed to facilitate work, workers exposed to a fall hazard must be protected by other Fall Protection Systems. The Guardrails must be replaced when the unguarded area is left unattended and after the work is completed (if still required)
- Guardrails shall be designed to withstand all loads likely to be applied in any direction.
- Where it is not possible to install guardrails in a danger area, a Travel Restraint or Fall Arrest Protection Plan shall be used. Cable/Fence Guardrails must meet the requirements of the local jurisdiction.

### **Elevating Working Platforms (EWP) & Logs**

Workers using elevating working platforms will be trained in its safe and proper use by the manufacturer or other approved designate (i.e. rental company, safety association etc.). The EWP operator will provide verification of training for the class of equipment used.

#### **Guidelines**

- EWP shall be equipped with a top rail, mid-rail and a toe board.
- EWP shall be used only on smooth level surfaces. EWP's used on uneven surfaces must be rated accordingly and used as per the manufacturer instructions.
- EWP are to raise workers and light tools, not materials beyond its rated capacity.
- Workers on EWP's must be protected from falling. Protection will include a full body harness and the appropriate lanyard to prevent the worker from striking the ground in the event of a fall. Double lanyard system may be required in some applications. Consult with your H&S department for jurisdictional requirements.
- Workers wearing a full body harness on a EWP will tie-off to the engineered anchor point identified by the manufacturer. If there is no approved anchor point consult with the H&S department.
- No person is permitted to use cheater planks and/or ladders on the EWP.
- Workers using EWPs shall conduct a daily inspection. See Elevated Work Platform Inspection H&S\_FORM\_048 and Scissor Lift Inspection H&S\_FORM\_049.

### **EWP**

Elevating Work Platforms must be designed and manufactured as per CAN3/CSA standards.

#### **EWP Signal Person**

A Signal Person will be utilized in the following circumstances:

1. When the EWP will be operated in close proximity to existing structures, piping, storage areas, facilities, power lines (\*See Procedure For Work Near Overhead Power lines – CF H&S Program), etc.
2. When the EWP will be operated inside a building or structure and there is potential to be operated in the vicinity of hazards including other workers, uneven surfaces or overhead hazards

#### **EWP Rescue Person**

A Rescue Person may be required due to the location or work activity. Consult with the H&S Department for further information.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Working at Heights**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### **Working at Heights**

The Rescue Person must be provided means of communication to notify Project Management and Designated Project First Aider in the event that assistance is required.

A Rescue Person will be instructed in their responsibilities and emergency procedures prior to any work being performed utilizing a EWP. The Rescue Person will remain in close proximity and maintain visual and/or audible contact with workers while a EWP is in use.

Note: The Rescue Person may be identified through the site Fall Arrest Rescue Plan. Consult with the H&S Department for further information.

#### **Ladders**

All work involving the use of ladders will be in compliance with the standards set forth in CF safe work practices for ladder use.

#### **Scaffolds**

All work involving the use of scaffolding (including suspended scaffolds) will be in compliance with the standards set forth in CF safe work practices for scaffolds.

#### **Personal Fall Protection Equipment**

- A worker must use an approved Full Body Harness for Fall Arrest and Travel Restraint (CAN/CSA-Z259.10 – 06 or equivalent standard).
- Shock-Absorbing Lanyards must meet CSA Standard (CAN/CSA-Z259.11 – 05 or equivalent standard) and, in combination with a Lifeline System, shall not allow a worker to fall more than 1.2m (4').
- A personal Fall Arrest System with a Shock Absorber shall be so arranged that if the worker falls, he/she will not hit the surface below.
- Where there is potential to sever, abrade, or burn a Safety Lanyard, the Lanyard must be made of an approved wire rope. A Shock Absorber must be used with such approved wire rope. Nomex/Kevlar Safety Harness may be required for workers in environments where falling is not the only hazard. Spark and slag from welding, cutting, burning, gouging, and smelting operations can quickly ruin standard nylon and polyester webbing normally used in the construction.
- When working around an energized conductor, a Non-Conductive Lanyard shall be used. If, in addition there is potential to sever, abrade, or burn the Lanyard, then two Non-Conductive Lanyards shall be used, or another effective means of Fall Protection.
- Snap hooks must be self-locking.
- Carabiners must have an ultimate load capacity of 5000lbs and this must be clearly shown along with a means of identifying the manufacturer on the device. A Carabiner must be secured to prevent inadvertent opening.
- A Lifeline, or Lanyard used without a Lifeline, must be secured to an anchor. A professional engineer must certify an Anchor Plate with multiple attachments in writing. An Anchor for a Vertical Lifeline or for a Lanyard used without a Lifeline must have an ultimate load capacity of at least 5000lbs in any direction required to resist a fall.
- All engineered drawings must be available onsite



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Working at Heights

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

## Working at Heights

### Fall Protection Equipment Inspection

All workers who wear Fall Arrest Equipment shall visually inspect their equipment on a daily basis prior to use to ensure there are no tears, rips, burns, abrasions, or other factors that would affect the performance of the fall arrest equipment.

The fall protection equipment inspection report will be completed to document the inspection history. See H&S\_FORM\_050.

Note – Horizontal Life Lines (HLL) are a component of the fall protection system and must be inspected by a competent person as required by the manufacturer, jurisdiction, or site requirements.

### Training

All personnel required to use Fall Protection Equipment must be trained in a “Working at Heights” approved training program in Ontario.

Training should include the following components:

- A review of current legislation pertaining to fall protection and any workplace specific rules
- The types of fall protection that can be used to control a fall hazard
- Identification of fall hazards;
- Assessment and selection of appropriate equipment and anchors that the worker may use;
- Instructions for the correct use of connection hardware
- Information about the effect of a fall on the human body, including:
  - Maximum arresting force
  - The purpose of shock and energy absorbers;
  - Swing fall and
  - Free Fall
- Pre-use inspection requirements
- Potential emergency response procedures to be used based on the fall protection system in place
- Practice in:
  - Inspection, fitting, adjusting, and connection fall protection systems and components

In addition to the training described a worker must be made aware of the fall hazards particular to that work site and the steps being taken to eliminate or control those hazards.

Personnel expected to conduct a site rescue will be trained in the procedures and techniques to conduct such a rescue.

### Hazard Identification & Assessment – Fall Protection Plan

Where workers are required to wear personal fall arrest systems the work will be reviewed for potential hazards and the appropriate controls identified. This plan will incorporate the use of JSA's, FLRA's, rescue planning, fall clearance calculations or other plans as required.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## Section: Working at Heights

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### Working at Heights

The procedures for working at heights with the use of a fall arrest system will be must be available at the work site and reviewed with workers before work with a risk of falling begins.

#### Calculating Fall Clearance

Calculating the fall clearance will help determine if the selected fall arrest system will prevent the worker from striking the ground or objects below:

The minimum fall clearance required using a shock absorbing lanyard is calculated by using the information below.

**Note:** This calculation reflects the fall clearance required from the anchor point. The use of vertical life lines will need to consider additional distance for potential stretch of the lifeline in relation to the components of the selected system.

A	Length of lanyard	=	
B	Extension of shock absorber	=	
C	D-ring slippage	= 1.5 ft	
D	Height of worker to D-ring		
E	Safety Factor	= 3 ft.	
F	Fall Clearance required (F = A+B+C+D+E)	=	

#### Rescue Planning

Where workers are required to wear fall arrest equipment the supervisor will ensure that a rescue plan is in place prior to the use of such equipment.

The rescue plan is to consider the types of fall arrest used, application and potential emergency situations.

Additional rescue planning may be necessary for unique situations and will be developed as part of the fall protection plan.

Items that can be considered as part of rescue planning:

- The use of elevating work platforms to reach workers at height



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Working at Heights**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### **Working at Heights**

- Equipment must be available
- Rescue personnel must be trained and competent in the use of the equipment
- Having Ladders on site that are capable of reaching a suspended worker
- Equipping workers with leg loop extensions for their Full Body Harnesses, e.g., Suspension Relief Straps
- Using rescue devices that includes an integral hand winch that allows the suspended worker to be raised upwards or lowered to safe ground. Use of this device does not require the suspended worker to be conscious. (ie Rollgliss)
- Equipping workers in certain situations with self-rescue devices such as the “Rollgliss” device that allows the suspended worker to remove themselves from their Lanyard and descend to safe ground using one of these devices.

#### **WAH Rescue Plan**

The WAH Rescue Plan H&S\_FORM\_051 can be used to determine the rescue plan and rescue team members when fall arrest equipment is in use. Additional planning may be required for scenarios not covered by the WAH Rescue Plan.

#### **Definitions**

Fall Arrest System is a system that will stop a worker’s fall before the worker hits the surface below.

Fall Protection System includes the following when used to protect a worker from a fall hazard:

- Guardrails;
- Full body safety harness with shock-absorbing lanyard & anchor point;
- A Travel Restrain System
- A Safety Net;
- A Control Zone;
- A Safety Monitor with a Control Zone;
- An Elevated Work Platform;
- A barrier constructed 2m back from an opening

A Travel Restraint System is a mechanism that restricts the movement of a worker on a work surface.

Personal Fall Protection System is an individual worker’s Fall Protection System, composed of a Shock Absorbing

Lanyard, Full Body Safety Harness and Lifeline, and any other connecting equipment that is used to secure the worker to an individual anchor or to a lifeline system.

Unusual Risk of Injury from a fall means there are added danger from landing on operating machinery, in water, or into a vessel; as well as the usual danger of impact with a hard surface.

Control Zone means the area between an unguarded edge of a building or other opening and a barricade, which is set back 2m (6ft) from the edge or opening.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Working at Heights**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### **Working at Heights**

Danger Areas includes elevator shafts, floor openings, scaffolding, slab edge, roof tops, and other tops, and areas where a fall of 3m (10') or more is possible.

#### **EWP Signal Person**

A person who has full view of the intended path of travel and provides audible or hand signals to the Equipment Operator to assist in safe operation of the Equipment. A signal Person must be a competent person and is to be instructed in the hazards that may be encountered and the necessary controls including limits of approach to prevent injury or damage.

EWP Operator is a competent person who maintains valid proof of training for the classifications of mobile equipment to be operated.

EWP Rescue Person is a person trained in operating the equipment from the ground controls to safely lower the work platform to the ground when the controls in the work platform are not functioning correctly or where unforeseen conditions prevent the crew in the work platform to lower the work platform safely to the ground.

#### **Tower Crane Rescue Planning Purpose**

Where tower cranes are being erected, used, altered, maintained, inspected, thoroughly examined or dismantled, the evacuation and rescue of persons from height, although required infrequently, must be planned for. This section's primary purpose is to provide guidance on the planning of the rescue of persons from height on tower cranes.

#### **Circumstances Requiring Rescue from a Tower Crane**

The following table summarizes the activities during which persons may require rescue from a tower crane, the persons who may require rescue and the types of emergency that may precipitate the need for rescue:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Working at Heights

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### Working at Heights

Activity	Person requiring rescue					Type of emergency			
	Erector	Operator	Maintenance Persons	Competent Person	Visitors	Suspension from fall arrest system	Equipment failure	Medical emergency/injury	Partial collapse of tower crane structure
Erection	✓					✓	✓	✓	✓
Use		✓					✓	✓	✓
Alteration	✓					✓	✓	✓	✓
Maintenance			✓			✓	✓	✓	✓
Thorough Examination				✓		✓	✓	✓	✓
Dismantling	✓					✓	✓	✓	✓
Other					✓	✓	✓	✓	✓

The table above indicates that the circumstances requiring rescue from height, fall into two categories:

- During erection, alteration and dismantling of the crane when the people who may require rescue are members of the crane erection team.
- During use, maintenance and thorough examination of the crane when those that may require rescue are the operator, visitors to the crane (e.g. safety advisors, inspectors, managers, etc.), maintenance persons and 'competent persons' carrying out thorough examinations.

#### Planning for Rescue from Height

Before carrying out rescue from height, as with all activities in the workplace, employers must ensure that a safe system of work is in place. A Working at Height Rescue Plan is vital to establish a safe system of work. Refer to WAH Rescue Plan H&S\_FORM\_051.

#### Recovery from suspension during erection, alteration and dismantling

CFs tower cranes will use a self-contained rescue system's, taken up the crane by the erection team and kept there whenever fall arrest systems are in use. In the event of a person falling and being suspended in the fall arrest system, rescuers will attach a rescue device to the crane structure and clip one end of the rescue rope to the casualty's harness D-ring using the telescoping pole provided. The casualty can then be raised back up to the crane structure or lowered to the ground (after the casualty's harness lanyard has been disconnected).



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Working at Heights**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### **Working at Heights**

#### **During use, maintenance and thorough examination of the crane**

The basic principles of rescue from height, while the crane is in use are similar to those outlined above. There are likely to be several different scenarios that need to be considered in the planning process. Issues to be considered in rescuing persons from the operator's cab include:

- cab location, e.g. hung or within the tower;
- access/egress, e.g. from the rear, top or trap door in the floor.

Before moving a casualty, a first aid assessment should be undertaken. The assessment will indicate whether there is an immediate need for recovery, or stabilization of the casualty while awaiting the rescue team or emergency services.

Once the person being rescued has been recovered from the cab they are generally moved to part of the crane structure, such as the counter jib, from which they can be lowered to ground level. This is generally carried out using either a proprietary rescue system or a man riding basket and it is sometimes possible to utilize a davit arm and/or tag line(s) to keep the casualty clear of the tower crane structure. The casualty may either be placed in a rescue stretcher or in a rescue harness, depending upon the injury and its severity.

The rescue equipment should be available on site at all times when persons are on the crane, as should be adequately trained rescuers.

Consideration should be given to how rescue equipment will be carried or hauled, or any additional risks that may be created if it is to be carried.

#### **Selection and Training of Rescue Persons**

It is essential that all rescue from height on tower cranes is carried out by adequately trained (competent) persons who should be available on site at all times when rescue may be required. All rescuers must have valid first aid certification.

Rescuers should be assessed using practical exercise(s), as well as theory session(s). It is desirable to undertake simulated rescue training to confirm that the training has been assimilated.

Refresher training should be carried out as required by training program. This should include a review of the rescue plan, as well as the equipment being used and its location. Equipment should be inspected at the end of any exercise and the findings recorded.

It is important that Rescuers are not exposed to additional risk during any simulated rescue carried out during training. It is generally preferable to utilize a mannequin of representative height and weight during a rescue exercise, although it can sometimes be beneficial to use a "live" casualty (person) for maximum authenticity. If a "live" casualty is being used a lifeline must be used to provide fall protection back-up.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Working at Heights

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 11

### Working at Heights

It is also important that persons operating or carrying out work on erected tower cranes have an appreciation of the rescue process. This will ensure that if they have to be rescued they will know what to expect and, if conscious, may be able to cooperate with the rescue team.

#### Inspection and Maintenance of Rescue Equipment

All equipment used for the rescue of persons from height on tower cranes must have a pre-use check before each use. Damaged equipment should be taken out of service immediately.

Rescue equipment is only to be used in rescue situations or in training. Rescue equipment is not to be used to lift equipment, tools, etc.

In addition to pre-use checks, equipment should be subjected to periodic detailed inspection (and/or thorough examination) by a competent person in accordance with a pre-determined regime specified by the equipment manufacturer.

**NOTE:** The inspection regime may specify the need for 'interim inspection'. WAH requires equipment to undergo a thorough examination.

Furthermore, rescue equipment should be inspected after use and, if damaged, taken out of service immediately.

Equipment should be kept clean and dry and should be properly stored, in a secure place. Wet equipment should be thoroughly dried before storage. Equipment should not be altered or repaired, unless this has been authorized by the manufacturer.

The frequency of detailed inspection should be reviewed by a competent person to take account of storage conditions and any damage found at pre-use and detailed inspections.

See the Fall Arrest Rescue Procedures section below.



## WORKING AT HEIGHT RESCUE PLAN

This Working at Height Rescue Plan is to be communicated to all Concrete Forming Ltd. staff on site. All CFL personnel should be aware of the rescue procedures on their jobsite and what to expect if a CFL employee's fall is arrested.

All CFL staff must be aware of the rescue procedures. CFL staff are expected to assist in a rescue situation in ways which they are competent and comfortable to carry out. This can include calling 911; helping to secure the scene; meeting EMS at the gate; using rescue devices; administering first-aid; etc. Rescues must be organized and carried out as quickly as possible.

While CFL staff may aid in the rescue of other employer's staff on site, this plan is written specifically for the rescue and immediate aftercare of CFL employees. This rescue plan must be accompanied by the 'Emergency Rescue Team' form, to be filled out by the site supervisor for each jobsite.

The Final section of this plan is to be completed as part of a debrief, following a rescue.

### Communication:

CFL workers commonly communicate using the following methods. Ensure that before any work is carried out at height, an emergency communication method is established using (circle at least one):

Direct voice communication

Mobile Phone

3-Long blasts of Crane Horn

Two-way Radios / Headsets

### Emergency Contact:

In the event of a rescue, the supervisor will immediately alert the rescue team and first aiders.

**Emergency Services (911)** are to be called immediately regardless of perceived severity. Any worker who has had their fall arrested should be considered injured and treated for suspension trauma. First-aid should also be administered for any secondary injuries.

Address of this site: \_\_\_\_\_

Supervisor: \_\_\_\_\_

Certified First Aider(s): \_\_\_\_\_

Are there any obstructions/hazards which must be accounted for when reaching the worker needing rescue?:

Abrasive Edge	Power Sources	Inadequate Anchor Points	Chemical Hazards
Equipment Hazards	High Angle Rescue		
Other:			



## WORKING AT HEIGHT RESCUE PLAN

The Following Equipment Should be Available to CFL and Inspected (at least) Monthly – Confirm:

Ladder

First Aid Kit

Rollgliss R550

Rescue-hook

**Other potential Means of Rescue:**

PEWP

Manual/Pulled to floor

Crane/Suspended Access Equipment

List any additional equipment available on this specific job:

---

**Rescuers:**

Are Rescuers competent in the use of rescue equipment?	Yes	No
--	-----	----

Plan reviewed?	Yes	No
----------------	-----	----

Is rescue equipment appropriate for nature of work?	Yes	No
---	-----	----

**How will Accident scene be protected?**

Danger Tape

Barriers

**Other Considerations:**

***Supervisor Should be notified immediately. Supervisor should then notify management as soon as possible.***

Rescue equipment been inspected and in good shape (Detail):

---

---

---

Unusual features of building / structure (Detail):

---





## WORKING AT HEIGHT RESCUE PLAN

---

---

Other:

---

---

---

### APPROVAL OF WORK AT HEIGHT RESCUE PLAN:

**Supervisor:**

Name (print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



## WORKING AT HEIGHT RESCUE PLAN

### Post Rescue Information

**Type of Rescue Performed:**

Assisted

Self-Rescue

**Method Of Rescue Performed:**

Ladder

PEWP

Manual

Rescue-hook/pulled to floor

Rollgliss R550

Crane/Suspended Access Equipment

**Ensure that the scene is secured, and any hazards created by the rescue team have been accounted for and controlled.**

**APPROVAL OF DEBRIEF:**

**Supervisor:**

Name (print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



## WORKING AT HEIGHT RESCUE PLAN

This document details 2 types of rescue procedures:

- **Assisted rescue for a worker who has fallen and is suspended in a harness.**
- **Self-rescue for a tower crane operator descending from the crane platform to ground.**

Both types require an emergency response that must be initiated by the project supervisor:

### Emergency Response

- If you see a suspended worker or an operator performing self-rescue, call for help immediately from other workers via voice or cell phone.
- Call 911 and ask for emergency assistance.
- Be prepared to respond quickly. If the worker is held in a position that limits blood flow for as little as 3.5 minutes they can succumb to serious and even fatal problems relating to blood pooling in the lower legs. See "Suspension Trauma" at the end of this document for more details.
- During the rescue, interact with the suspended worker on a regular basis to monitor their well-being. If they can move their legs, encourage them to find something to kick against or to lift their knees into a sitting position if possible. This will get their legs above their hips and keep the blood flowing.

### Assisted Rescue for Fall Arrest

When a worker falls and is suspended in a harness, it is important to rescue them as quickly as possible for the following reasons.

- The worker may have suffered injuries during the fall and may need medical attention.
- When workers are suspended in their safety harnesses for long periods, they may suffer from suspension trauma.
- Suspended workers may panic if they are not rescued quickly.
- The events that led to the fall may create additional risks that need to be addressed.

### GROUND RESCUE

Attempt a GROUND RESCUE if:

- the worker is suspended at an accessible height with an accessible ground surface;
- is conscious and appears to be alert and;
- has control over their arms and legs

The GROUND RESCUE is always the safest option when available. If a GROUND RESCUE is not possible, perform a **NON-GROUND RESCUE** detailed below.

GROUND RESCUE method can be determined in this order:

A. Scissor or Boom Lift

B. Scaffold or Ladder

#### A. Scissor or Boom Lift

1. Position the elevating work platform underneath the suspended worker.
2. Ensure that the elevating work platform has enough lifting capacity to safely support all workers likely to be on the platform.
3. Ensure that all the required personal protective equipment for rescuers is being used (full body harness, attached to the designated tie off point on the platform).
4. Bring the elevating work platform up until the suspended worker safely touches the floor of the platform.



## WORKING AT HEIGHT RESCUE PLAN

5. Once the suspended worker is safely on the floor of the elevating work platform, release the fall protection harness assembly from the lanyard or lifeline and connect the worker's full body harness to the elevating work platform for the descent of the platform (it may be necessary to have a new lanyard available for the worker – the old shock absorbing lanyard may have been destroyed during the fall arrest action).
6. Once the worker has been brought to a safe location, administer First Aid, and treat the person for suspension trauma and any other injuries.
7. Provide assistance to emergency responders as needed.

### B. Scaffold or Ladder

1. Place a securely fastened ladder or scaffold (rolling or portable) under the suspended worker to allow the worker access to it in a safe, controlled manner.
2. If possible, use a second worker positioned on another securely fastened ladder, or on the scaffold platform, to ensure that the suspended worker positions himself safely.
3. Always check to ensure that the scaffold platform is not being overloaded. Guide the worker or assist them down the ladder or scaffold.
4. If the lifeline restricts movement, assist the worker as required.
5. Once the worker has been brought to a safe location, administer First Aid, and treat the person for suspension trauma and any other injuries.
6. Provide assistance to emergency responders as needed.

### **NON-GROUND RESCUE**

If the worker is suspended at a height not accessible via elevated work platform, scaffold or ladder, the **Sala Rollgliss R550** must be deployed. It can be found in the yellow case onsite. All devices must be inspected each day before use. **This system is only to be used by competent workers who have training in its operation and understand the manufacturer user instructions.**

#### Assisted Rescue Procedure - DBI Sala Rollgliss R550:

1. Find a suitable anchor point to attach the Rollgliss R550 unit by carabiner.
2. Deploy Petzl rope protector over the edge of the building to protect the rope.
3. Lower snaphook on the lifeline to victim and use rescue pole to connect to sternal or dorsal D-Ring.
4. Raise the victim slightly using the rescue wheel to allow removal/disengage of fall arrest subsystem.
  - Secure the Free End of the lifeline with the R550 Device's Pigtail and Cam Cleats to prevent unintentional descent.

UNDER NO CIRCUMSTANCES SHOULD THE SUSPENDED WORKER'S HARNESS BE DISCONNECTED FROM THEIR LIFELINE OR ANCHOR POINT BEFORE THE WORKER IS SAFELY ON A SECURE SURFACE OR SAFELY ATTACHED TO THE DBI SALA ROLLGLISS R550.

### 5. Prepare the Lifeline for Descent



## WORKING AT HEIGHT RESCUE PLAN

- Prior to descent, the section of lifeline between the user and the R550 Device must be tightened to remove any slack. Tighten the lifeline by pulling on the free end of the lifeline until slack between the user and R550 Device is removed. Once the lifeline is taut, hold the free end of the lifeline tightly until descent is initiated.

### **6. Raise/lower victim to safety using rescue wheel/manual descent.**

- Descent may be interrupted by firmly grasping the free end of the lifeline

On some buildings, it may be necessary or more practical to break a nearby window from the inside and pull the suspended worker into the interior of the building. Again, any worker who is exposed to a fall hazard must use the proper fall protection equipment.

### **7. Once the worker has been brought to a safe location, administer First Aid, and treat the person for suspension trauma and any other injuries.**

During and after a rescue, it is important that you NOT allow the victim to lie down, as this can cause a heart attack and multiple organ failure when the deoxygenated blood comes flooding back to the heart. KEEP THE PERSON IN A KNEELING POSITION, THEN A SITTING POSITION FOR THE FIRST 30 MINUTES AFTER THE RESCUE.

ALL WORKERS WHO EXPERIENCE A FALL ARREST/SUSPENSION WILL HAVE A MEDICAL EVALUATION TO DETERMINE THE EXTENT OF INJURIES, IF ANY.

### **8. Provide assistance to emergency responders as needed.**

#### **Self-Rescue for Crane Operator**

When a worker is suspended in a harness, it is important to help rescue them as quickly as possible for the following reasons.

- The worker may need medical attention.
- When workers are suspended in their safety harnesses for long periods, they may suffer from suspension trauma.
- Suspended workers may panic if they are not rescued quickly.
- The events that led to the fall may create additional risks that need to be addressed.

If crane operators cannot safely climb down during an emergency the **DBI Sala Rollgliss R550** must be used. This is a self-rescue procedure. All devices must be inspected each day before use. The unit can be found in the yellow case inside the crane cab. **This system is only to be used by competent workers who have training in its operation and understand the manufacturer user instructions.**

#### **Crane Rescue Procedure - DBI Sala Rollgliss R550:**

- 1. Find suitable anchor point to attach Rollgliss unit by carabiner.**
- 2. Throw the bag with the rope to the ground.**



## WORKING AT HEIGHT RESCUE PLAN

3. **Attach the snaphook on Rollgliss lifeline to sternal D-ring or dorsal D-ring on harness.**
4. **Prepare the lifeline for descent; ensure there is no slack between the D-ring and the Rollgliss unit.**
  - Tighten the lifeline by pulling on the free end of the rope until slack between the user and R550 Device is removed. Once the lifeline is taut, hold the free end of the lifeline tightly until descent is initiated.
5. **Release free end of Rollgliss lifeline to initiate descent (centrifugal brake allows 2-3 ft/s).**
  - Descent may be slowed, interrupted or prevented by using the following methods:
    - a. Slow or interrupt descent by grabbing the free end of the lifeline
    - b. Use the Pigtail while firmly grasping the free end of the Lifeline to provide additional descent control.
6. **Once the operator is on the ground and brought to a safe location, administer First Aid, and treat the person for suspension trauma and any other injuries.**

During and after a rescue, it is important that you NOT allow the victim to lie down, as this can cause a heart attack and multiple organ failure when the deoxygenated blood comes flooding back to the heart. KEEP THE PERSON IN A KNEELING POSITION, THEN A SITTING POSITION FOR THE FIRST 30 MINUTES AFTER THE RESCUE.

ALL WORKERS WHO EXPERIENCE A FALL ARREST/SUSPENSION WILL HAVE A MEDICAL EVALUATION TO DETERMINE THE EXTENT OF INJURIES, IF ANY.

7. **Provide assistance to emergency responders as needed**

### Post-Rescue Procedure

All workers must remain onsite in a safe location until the site supervisor notifies them to do otherwise.

**The site supervisor and health and safety representative must ensure the following is completed:**

- Secure the area where the incident occurred.
- If a critical injury or fatality has occurred, immediately notify the Ministry of Labour. The accident scene must not be disturbed.
- Notify management of the incident.
- Quarantine all fall arrest equipment used during the fall for further investigation and inspection.
- Begin the incident investigation:
  - Record all documented statements from employees, witnesses, and others.
  - Save all photographs of the incident.
  - Record all key information such as dates, time, weather, general site conditions, and specific incident locations including sketches of the immediate area, complete with measurements if applicable.
  - Record all documented communications with fire, police, EMS, Ministry of Labour, and any other contractors involved.



## WORKING AT HEIGHT RESCUE PLAN

### Management must ensure the following is completed:

- Review the applicable sections in the Occupational Health and Safety Act (Sec. 51-53) and the Construction Regulations (Sec. 8-12) to ensure the Ministry of Labour receives all required notices regarding the occurrence.
- Review and complete the incident investigation.
- Determine whether the rescue procedures were followed as designed. Discuss the incident with workers and the supervisor. Make corrections to the procedures if necessary.
- Replace any needed fall protection equipment.
- Ensure all rescue devices (i.e. DBI Sala Rollgliss) have been removed from service and subsequently inspected by a certified technician to ensure good working order.

### Suspension Trauma

After an arrested fall, the fallen worker remains suspended in mid-air from their full body harness, awaiting rescue. In most cases, the worker is not injured and can alter body position within the harness to be more comfortable.

Unfortunately, a worker suspended in a near upright position with the legs dangling in a harness of any type is subject to what has come to be known as “suspension trauma”. This is one of the reasons that the fall protection plan must include rescue procedures.

During a fall arrest circulation of blood is reduced because the legs are immobile, and the worker is in an upright position. Gravity pulls the blood into the lower legs, which have a very large storage capacity. Enough blood eventually pools in the legs, reducing the return blood flow to the right side of the heart. This causes blood supply problems for both the heart and the brain. Normally the person faints at this point and falls to the ground. Now that the person is horizontal, blood from the legs flows back to the heart and on to the rest of the body.

While suspended in a harness however, the worker cannot fall into a horizontal position. The problem is that they are being held vertical while motionless. Fall victims can slow the onset of suspension trauma by pushing down forcefully with the legs, by positioning their body in a horizontal or slightly leg-high position, or by standing up. However, the design of the harness, the attachment points used, and the presence of fall injuries may prevent these actions.

The suspended worker faces several problems:

- The worker is suspended in a near upright posture with legs dangling;
- The safety harness straps exert pressure on leg veins, compressing them and reducing blood flow back to the heart; and

Rescue must happen quickly to minimize the dangers of suspension trauma. According to information summarized in the July 2008 issue of the *Journal of Occupational and Environmental Medicine*, suspension trauma begins within 3.5 to 10 minutes in most subjects, with a few very fit subjects developing symptoms after 30 minutes. This time increases significantly if the suspended person can move their legs against resistance during suspension.

Symptoms have been described as starting with a feeling of general physical discomfort, then intense sweating, nausea, dizziness, and hot flashes. Symptoms progress to difficulty breathing, increasing heart rate, and progressively worsening heart function. Eventually the person loses consciousness. A person who is motionless and suspended in a harness is considered to be a medical emergency and a rescue must be performed quickly.



## **WORKING AT HEIGHT RESCUE PLAN**

If a worker is suspended long enough to lose consciousness, rescue personnel must be very careful in handling such a person. The heart's inability to tolerate the abrupt increase in blood flow to the right side of the heart after removal from the harness is life threatening.

Current recommended procedures are to take from 30 to 40 minutes to move the victim from a kneeling to a sitting to a laying down position. All suspended victims will receive emergency medical attention.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

# HOISTING, RIGGING, AND MATERIAL HANDLING

## PURPOSE

Hoisting, rigging and material handling are essential tasks to CF operations. CF recognizes that these tasks can range from simple to complex and have a varying degree of risk. CF will ensure that the individuals involved in hoisting, rigging and material handling operations are competent to perform such tasks.

## SCOPE

Hoisting, rigging and material handling activities can encompass a variety of tasks. This section of CF H&S program outlines the safe work practices and procedures required for but not limited to:

- Hoisting Equipment
  - Cranes, winches and hoists
  - Inspection requirements
- Rigging Hardware
  - Slings, chains, wire rope, hooks etc.
  - Rigging inspection
- Lift planning
  - Typical and complex lifts
- Material Handling
  - Equipment such as forklifts, concrete pump trucks, hydrovac, pile driving
  - Storage of material

### Hoisting, Rigging and Material Handling

Only those qualified by knowledge, training, and experience shall perform Hoisting, Rigging and Material Handling activities.

### Lifting Categories

#### Typical or Common Lift

A typical or common lift does not meet the Critical Load definitions as noted below. This includes routine or repetitive lift activities below 75% of the maximum capacity of the lifting device.

#### Critical Lift

- Tandem lift which requires multiple cranes, or two hooks on same crane and exceeds 75% crane capacity
- Centre of gravity is significantly off from center
- Load is difficult to balance and secure (e.g., liquid filled container/vessel)
- Load subjected to high winds or adverse weather conditions causing load instability
- Load must travel over operating equipment
- Public at risk
- See H&S\_FORM\_052 for Critical Lift Plan, if required

#### Lift Plan Review

If the Supervisor determines any of the following conditions apply to the proposed lift; then the Supervisor shall ensure an engineering review of the lift plan is performed.

- Two or more cranes are required to lift a load (mobile or fixed) and exceeds 75% crane capacity



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### HOISTING, RIGGING, AND MATERIAL HANDLING

- Sling angle to eye bolt is less than 45 degrees, or 30 degrees for other lifting equipment
- Lift may be subject to adverse weather conditions or high wind loads causing instability
- Load weight or centre of gravity is unknown and difficult to determine.
- Lift will require the crane to be loaded to 95% of its capacity at any point in the travel of the load.
- Man basket attached to crane and worker must enter;

#### Special Considerations in Lift Planning

Crane or Load can swing within Limit of Approach of high voltage power lines.

- Have alternate lift/swing positions have been examined
- Is De-energizing lines/conductors feasible
- Must use a dedicated signal person designated to watch line / conductor clearance
- Signal person shall be readily identifiable and able to communicate effectively with the operator
- If voltage of power line is known safe limit of approach can be determined
- If voltage unknown either use maximum safe limit of approach or contact local electrical authority

Lift on or over any type of live / process equipment or containers

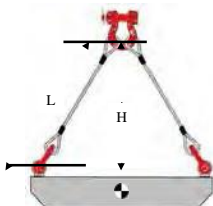
- Are the contents or function of the equipment or containers known
- Ensure All workers clearly understand potential hazards
- Facilities housing personnel must be vacated and flagged
- Best and most practical crane communication signals to be used
- A Designated channel/frequency is available for critical radio communication

#### SLING ANGLES

Sling angles should be maintained at greater than 45 degrees from horizontal between the connection point and the hook. Stress on the connection point and sling increases exponentially as the sling angle decreases. The chart and basic equation below provide guidance on the amount of load increase on the connection point and sling.

#### Common Equation for Calculating Sling Tension

##### Sling Angles



$$L/H = \text{Load Factor}$$

$$L = 144''$$

$$H = 125''$$

$$144'' / 125'' = 1.152$$

Sling Angle	Load Angle Factor
90°	1.000
85°	1.004
80°	1.015
75°	1.035
70°	1.064
65°	1.104
60°	1.155
55°	1.221
50°	1.305
45°	1.414
40°	1.555
35°	1.742
30°	2.000
25°	2.364
20°	2.924
15°	3.861



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### HOISTING, RIGGING, AND MATERIAL HANDLING

Angle near 60°

10°	5.747
5°	11.490

The following formula may be used to calculate sling tension:

Example:

Load Weight (L): 5000 lbs Slings: 2 Sling Angle 45 Degrees

Load Angle Factor: 1.4 (from chart)

**For m u l a : Sling Tension =  $L \div \# \text{ of Slings} \times \text{Load Angle Factor}$**

Sling Tension =  $5000 / 2 \times 1.4 = 3500\text{lbs}$  - (Each sling receives 3500 lbs of tension/load)

Note: Above equation assumes Centre of Gravity is at approximate centre of load and 2 slings are used.

#### Hoisting and Rigging Equipment Inspection Requirements

##### Initial Inspection

This inspection is done at the time the product is first received to ensure that damage has not occurred during shipment. Verify that the goods are in compliance with the specification of the purchase order. Verify that all inspection and maintenance records are with the equipment and up to date before putting the unit into service.

##### Pre-use Inspection

This level of visual inspection should be done by the person handling the sling or device, or other specifically designated personnel. Hoisting Equipment Inspection Form, H&S\_FORM\_053 but Records are not required.

- a) Normal service – daily when in use
- b) Severe service – each use
- c) Special or infrequent service – as recommended by a qualified person before and after each use.

##### Periodic Inspection / Annual Inspection

The periodic level of inspection is done by designated personnel at regular intervals. At a minimum this inspection must be carried out at the interval required by the manufacturer (Check manual for each piece of equipment)/ In addition the interval may be based upon the frequency of use, severity of service conditions, and information derived through the pre-use inspection process.

##### Inspection Records

Inspection must be conducted by a competent person. Inspection records must be documented. Slings must be individually identified and condition of sling at the time inspection must be recorded. Records shall be available at site or available to site.

##### Nylon Web Slings – Inspection Standard

Workers involved in the use of nylon web slings shall be familiar with their characteristics and the necessary safety precautions.

##### Procedure

The following defects seriously question the nylon web safety and are reason to remove the web from service:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

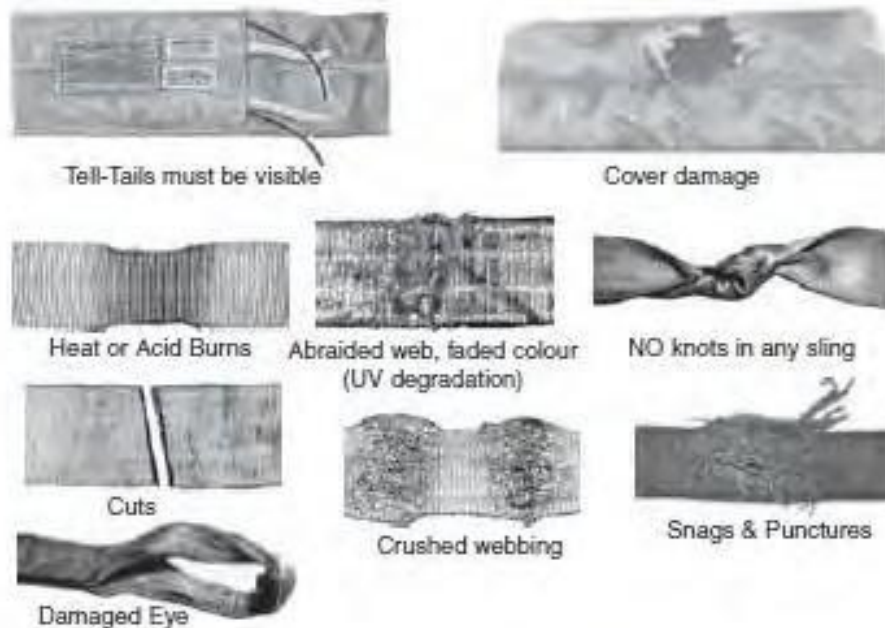
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### HOISTING, RIGGING, AND MATERIAL HANDLING

- Nylon web slings that are cut, torn, frayed, burned, or otherwise worn are no longer trustworthy. It is not possible to calculate the strength left in damaged slings.
- Chemical action, heat, sunlight, and acid fumes discolour the nylon and indicate a loss in strength.
- When stitching is broken, the sling will not take the load evenly, but will put greater stress on the remaining stitching.
- Holes in the web where fibers are separated are cause for replacement.
- Manufacturers tag must be legible and affixed to all slings.



**Note:** To prevent the above damage, sleeves or edge guards should be used. These protect the lifting capability of the sling and when cut or damaged are easily replaced. Wide sling angles cause the outside edge of the sling to tear.

#### Wire Rope – Inspection Standard

All Wire rope in continuous service shall be observed during normal operation and visually inspected on a weekly basis.

#### Procedure

The following defects seriously question the wire rope safety and are reason to remove the wire rope from service:

- Broken Wires
- 6 randomly distributed broken wires in one rope lay
- 3 or more broken wires in on strand
- One or more broken wires at end fitting



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### HOISTING, RIGGING, AND MATERIAL HANDLING

- Worn or Abraded Wires
- If wear exceeds 1/3 of rope diameter
- Look for shiny flat areas
- Reduction in Diameter
- Normal wear reduces diameter
- Stretch
  - If lay is visibly lengthened
  - Compare to new sling/wire rope
  - Caused by overloading
- Corrosion
  - Exterior rust, pitting, discoloration
  - Interior damage is hidden
  - Corrosion at base of end attachment
- Kinking
  - Permanent bend/dog
  - Caused by faulty handling
- Bird-caging
  - Permanent "see-through" distortion
  - Caused by sudden release of tension
  - Never returns to original shape
- Core Protrusion
  - Core is visible
  - Caused by shock-loading
- Bulges
  - Isolated increases in diameter
  - Caused by core slippage
- Poor Lubrication
  - If grooves are packed with hard grease or dirt
  - If possible, clean grooves and re-lubricate
  - Results in internal friction and wear
- Fittings
  - Distorted hooks, tings, sleeves, thimbles
  - Discard if wear exceeds 10% of any dimension from new
  - Discard if hook opening has increased by 10% from new
- Unbalanced Wear
- Hear Damage, Torch Burns, Electric Arc Strikes
- Anti-Rotating Wire Rope
  - Flex rope near ear and listen for clicking noise broken interior wires

Wire Rope Nominal Size	Maximum Reduction in Diameter
Up to $\frac{3}{4}$ "	$\frac{3}{64}$ "
$\frac{3}{4}$ " to $1 \frac{1}{4}$ "	$\frac{1}{16}$ "
$1 \frac{1}{4}$ " to $1 \frac{1}{2}$ "	$\frac{3}{32}$ "



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### HOISTING, RIGGING, AND MATERIAL HANDLING



#### Repair of Wire Rope Slings

There shall be no repairs done to the wire used in a wire rope sling. Repairs shall be restricted to end attachments and fittings, which will be deemed ok by the manufacture.

Note: If any of the above defects are present, the wire rope/fitting shall be removed from service.

#### Chain Sling – Inspection Standard

Chain used for hoisting shall be observed during normal operation and visually inspected on a weekly basis. Only alloy chain shall be used for hoisting with an “8” or “T” embossed on the link.

#### Procedure

The following defects seriously question the chains suitability for hoisting and are reason to remove the chain from service:

- Stretch
- Measure lengthening of links
- Stretched links will have an hourglass shape
- Stretched links tend to bind on each other
- Check for leg length by hanging sling
- If stretch exceeds 3% REPLACE the chain
- New chain should be carefully measured when new and its length should be recorded to use as a future standard.
- Link Wear
  - using calipers measure diameter at point of maximum wear
  - maximum wear is normally at a crack, gouge, chip or cut
  - If reduction in diameter is more than 10%, REPLACE the chain
  - Look for wear at bearing surfaces
- Shock Loading



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### HOISTING, RIGGING, AND MATERIAL HANDLING

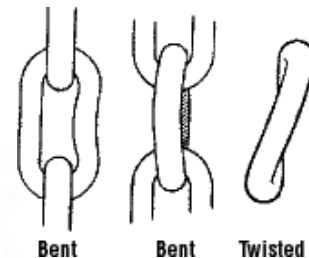
- If chain is given a shock load, inspect carefully for cracks
- When chains fail due to shock loading, flying debris acts like a bullet
- Improper Use
  - Around sharp corners or edges with no softeners
  - Dragging chain from under loads
  - Hoisting when links are locked
  - Avoid dropping chain from heights
  - Do not hammer links to straighten them
  - Shorten a chain by using a shortening clutch. NO OTHER METHOD IS ACCEPTABLE.



PITTING & CORROSION



DEFORMED COMPONENTS



Bent

Bent

Twisted

#### Repair of Chain Slings

Cracked, broken, or bent chain links shall not be repaired, they shall be replaced. All repaired chain slings must be proof tested to twice the Vertical rated capacity.

#### Nylon Web Slings – Operating Procedure Mechanical Considerations

- Determine the weight of the load
- Select sling having suitable characteristics for the type of load, hitch and environment
- Sling shall not be loaded in excess of the rated capacity. Consideration should be given to the angle from the horizontal (load to sling angle) which affects rated capacity.
- Slings with fittings which are used in a choker hitch shall be sufficient length to assure that the choking action is on the webbing.
- Slings used in a basket hitch shall have the load balanced to prevent slippage
- Slings shall not be dragged on the floor or over an abrasive surface.
- Slings shall not be twisted or tied into knots, or joined by knotting
- Slings shall not be pulled from under loads when the load is resting on the sling.
- Slings shall always be protected from being cut by sharp corners, sharp edges, protrusions or abrasive surfaces. Softeners and sling savers are the only acceptable materials to be used when lifting.
- Do not drop slings equipped with metal fittings.
- The opening in fittings shall be the proper shape and size to ensure that the fitting will seat properly in the hook or their attachments.
- All slings must be protected from damage while being moved, and properly stored when not in use.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## HOISTING, RIGGING, AND MATERIAL HANDLING

### Environmental Considerations

Slings should be stored in a cool, dry and dark place; and should not be exposed to ultra violet light (sunlight). Chemically active environments can affect the synthetic web slings in varying degrees ranging from none to total degradation. The sling manufacturer should be consulted before slings are used in a chemically active environment.

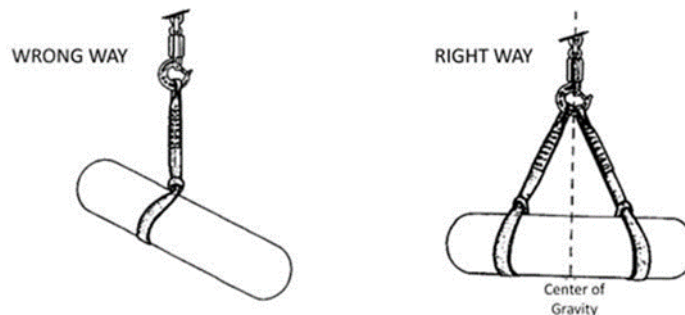
### Style of Hitch to be Used

Slings can be used in any of the three Hitches illustrated. Some slings are designed to be used in a specific hitch application only.

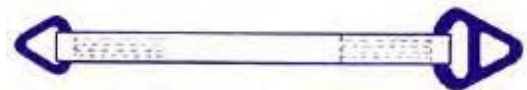


### Control and Balance

Use a hitch that will keep the load under control at all times and be sure the lifting device is directly over the center of gravity.



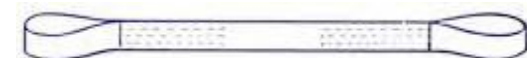
Type 1: Triangle & Choker (TC) - Hardware on each end produces the most effective choker hitch. Can also be used in vertical and basket hitches.



Type 2: Triangle & Triangle (TT) - Hardware on each end for use in basket or vertical hitch.



Type 3: Flat Eye & Eye (EE) - Popular, versatile sling used in vertical, choker & basket hitches. Easy to remove from underneath loads.







HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

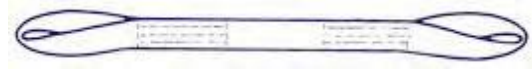
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### HOISTING, RIGGING, AND MATERIAL HANDLING

Type 4: Twisted Eye & Eye (EE) - Eyes turned at a right angle to sling body. Forms superior choker hitch & allows better fit on crane hook in basket hitch.



Type 5: Endless (EN) - Economical & adaptable sling with no fixed wear points. Used in all hitches.



Type 6: Reversed Eye (RE) - Extremely strong & durable for continuous &/or abusive applications. Wear pads on both sides of body.



#### Wire Rope and Chain Slings – Operating Procedure

##### Mechanical Considerations

- Determine the weight of the load
- Select proper wire or chain sling having suitable characteristics for the type of load, hitch and environment. Only wire and chain slings with legible identification tags shall be used.
- Wire or Chain slings shall not be loaded in excess of the rated capacity. Consideration should be given to the angle from the horizontal (load to sling angle) which affects rated capacity.
- Only alloy chain shall be used for hoisting with an “8” or “T” embossed on the link.
- Wire or Chain slings with fittings which are used in a choker hitch shall be of sufficient length to assure that the choking action is on the sling and never on the fittings.
- Wire or Chain slings used in a basket hitch shall have the load balanced to prevent slippage.
- Wire or Chain slings shall not be twisted or tied into knots, or joined by knotting.
- Wire or Chain slings shall not be pulled from under loads when the load is resting on the sling.
- Consideration shall be given to the distribution of load weight on a multi-legged lift.
- Make shift fasteners, hooks, or links formed from bolts, rods, et., or other such components shall not be used
- Mechanical coupling links shall not be used within the body of an alloy chain sling to connect two pieces of chain
- Horizontal sling angles less than 30 degrees shall not be used except as per Engineering documentation.
- Slings in contact with edges, corners, or protrusions should be protected with a material of sufficient strength, thickness, and construction to prevent damage to the sling.
- The load applied to the hook should be centered in the base (bowl) of the hook to prevent point loading on the hook, unless the hook is designed for pointing loading.

##### Environmental Considerations

The strength of the chain slings or wire rope slings can be degraded by chemically active environments. This includes exposure to chemicals in the form of the solids, liquids, gases vapors or fumes. The sling manufacturer or qualified person should be consulted before slings are used in the chemically active environments.

Sling shall be stored in an area where they will not be subjected to mechanical damage corrosive action, moisture,



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

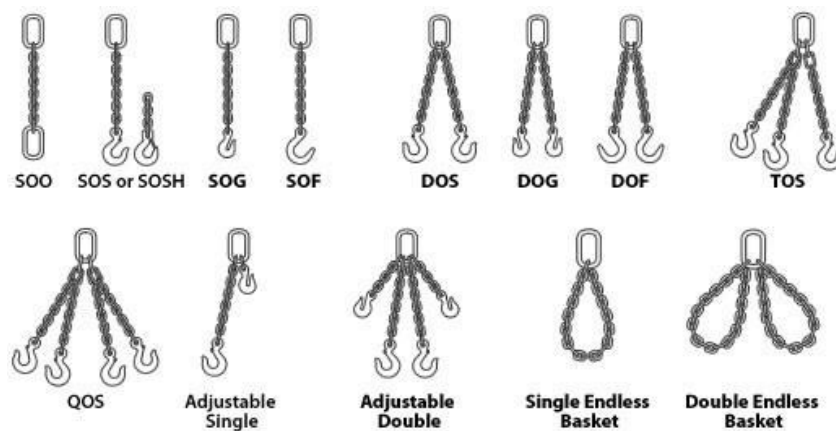
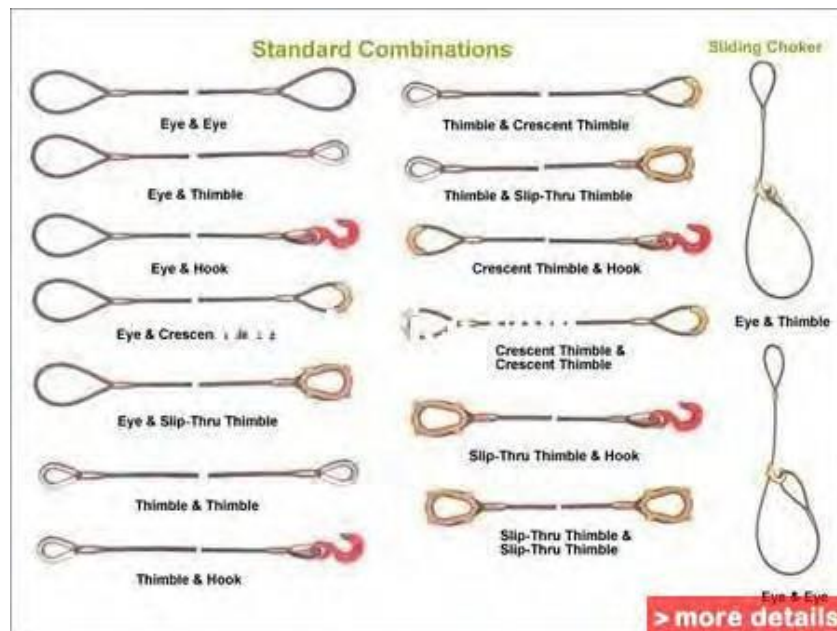
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## HOISTING, RIGGING, AND MATERIAL HANDLING

and extreme temperatures or kinking.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

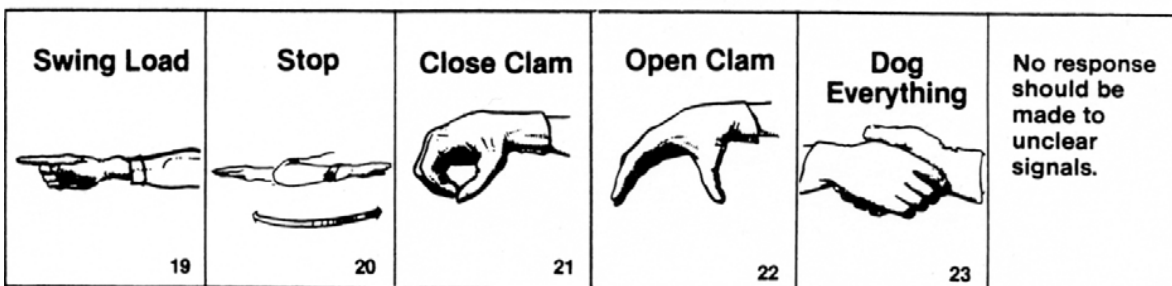
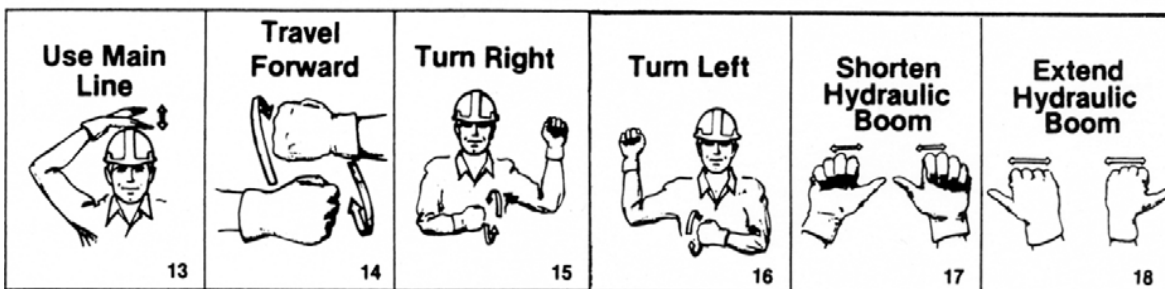
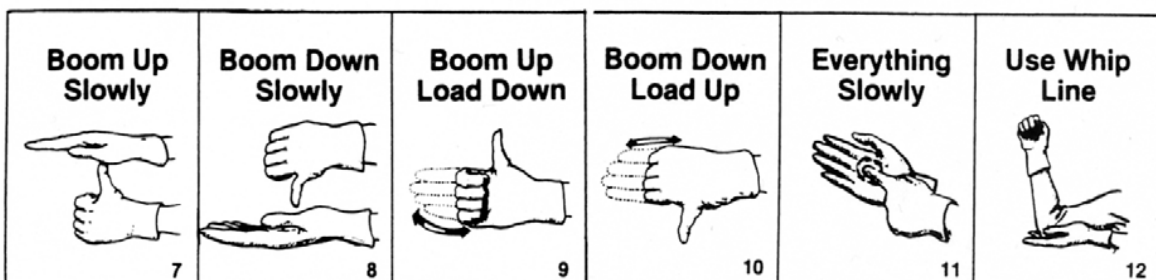
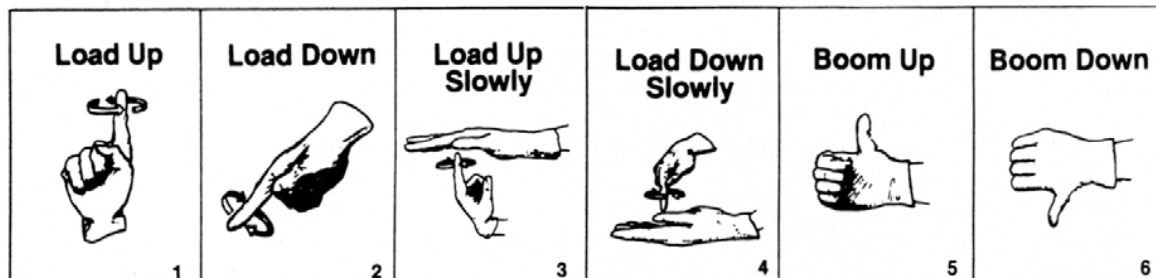
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

# HOISTING, RIGGING, AND MATERIAL HANDLING

## Hand Signals





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Hoisting, Rigging, And Material Handling

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

# HOISTING, RIGGING, AND MATERIAL HANDLING

## Slings and Hitches

### Standard

Workers involved in the use of chain, fiber rope, wire rope or nylon web slings shall be familiar with their characteristics and the necessary safety precautions.

### Procedure

- Safe working loads are reduced as legs are spread. When the angle formed by the spreader leg and the horizontal is 45°, the safe working load is reduced by 1/4.
- When a choker hitch is used, the safe working load is reduced by 1/4.
- If a three-legged sling is used, the sling size selected should be based on a two- legged sling (the third leg does not carry its share of the load).
- If a four-legged sling is used, the two diagonally opposite legs take most of the load. The remaining two only balance; therefore, select sling size based on a two-legged sling.
- Hoisting chains must be alloy steel stamped on links with a "T" or "8". NO OTHER CHAIN IS ACCEPTABLE for hoisting purposes.
- An example of a field calculation for fiber rope safe working loads are: Manila – number of eighths in diameter x itself x 20 = SWL (pounds) i.e. 3/4" manila 6 x 6 x 20 = 720 pounds Chart SWL = 1,080 pounds
- Polypropylene –number of eighths in diameter x itself x 40 = SWL (pounds) i.e. 3/4" polypropylene 6 x 6 x 40 = 1,440 pounds Chart SWL -1,700 pounds
- Nylon –number of eighths in diameter x itself x 60 = SWL (pounds) i.e. 3/4" nylon 6 x 6 x 60 = 2,160 pounds Chart SWL –2,800 pounds
- An example of field calculations for nylon web safe working load is .8 ton (1,600 pounds) per h of webbing. i.e. 8" nylon web .8 x 8" = 6.4 tons (12,800 pounds) Many manufacturers chart SWL = 12,000-12,800 pounds
- Field calculation is never as accurate as manufacturer's specifications, but can serve as a quick guideline. The above field calculation observes a 5 to 1 safety factor on new material on a straight pull.

## Hand Operated Chain Hoists Standard

Workers involved in the use of chain hoists shall be familiar with their characteristics and the necessary safety precautions.

### Procedure

- Manually operated chain hoists may be:
  - spur drive
  - geared endless chain operated
  - worm drive
  - geared (screw geared) endless chain operated
  - differential endless chain operated
  - lever operated
- The chain on these tools is a special case-hardened product. It is not marked as alloy chain with a "T" or "8".



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Environmental Policy**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

# **ENVIRONMENTAL POLICY**

## **PURPOSE**

CF is committed to conducting its business activities in an environmentally responsible manner. CF recognizes the value of sound environmental practices and the need to comply with all legislative requirements pertaining to the preservation of our environment. Preventative measures and engineering controls are essential in preventing environmental incidents, and preparedness is essential in minimizing the impact on the environment in the event that an unforeseen event occurs. The assessment and control of potential environmental concerns are essential to the maintenance and improvement of our natural world.

## **SCOPE**

### **Water Quality and Sediment Retention (General)**

The best management practices to prevent damage to water quality should be in place before evidence of erosion and runoff appears. Engineering controls to prevent runoff includes:

- Stabilized site entrance with mud pads, rock spall
- Slope stabilization and/or roughing
- Runoff diversion
- Control volume and water runoff
- Construction of sediment and retention ponds
- Minimal site disturbance
- Mulch and/or seeding disturbed area
- Stockpile protection, covered with 6 mm plastic and secured, then circled at the bottom to catch runoff
- Minimizing the amount of time bare soil is exposed To the extent possible, sediments should be contained on the site.

Whether engineering controls are temporary or permanent (for the duration of the project) it is essential that regular monitoring and maintenance be performed. Engineering controls should also be inspected and maintained after major storms or other changed conditions. Such maintenance should be assigned to a designated worker who has been trained in the implementation and maintenance of engineering controls.

### **Filter Fabric Fences**

Filter fences are suitable to trap small quantities of eroded material but should not be used when the drainage is over one acre. This is unless the fencing is used in conjunction with another drainage system. Filter fabric fences if correctly installed and maintained will normally trap a higher percentage of sediment than other methods.

### **Procedure**

- Fabric should be cut in a continuous roll and attached to metal supports on 1.8m (6') centres
- Joints are best avoided. If unavoidable joints may be overlapped at least 150 mm (6") or more
- Trenches should be 300mm x 200mm (12" x 8") lined with fabric and filled with gravel





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Environmental Policy

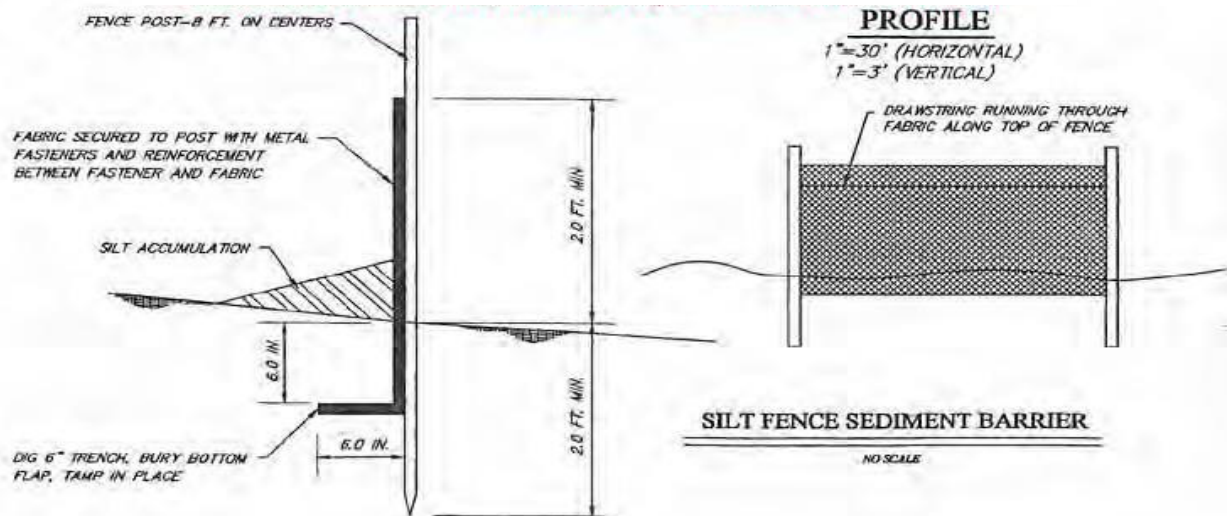
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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## ENVIRONMENTAL POLICY



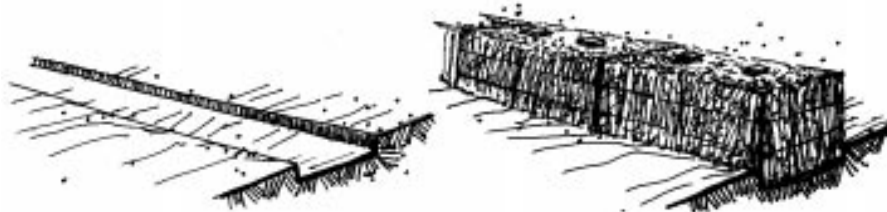
### Straw Bales

Straw bales correctly installed and maintained will intercept and detain a small amount of sediments from a drainage area typically of  $\frac{1}{4}$  acre or less. This is unless the bales are used in conjunction with another drainage system which would increase the area of coverage. The maximum gradient behind the bales should not exceed 2:1. (Refer to diagram)

#### Procedure

- Place bales in a single row with ends tightly abutting one another.
- Dig a 100mm (4") trench the width of the bale and the length of the line. Install a fabric seal to prevent undercutting.
- Anchor the bales with two stakes (preferably metal), driven toward the previously laid bale. Drive the stake into the bale to prevent impalement of workers. Use mushroom caps or other protective devices if required to prevent injury of impalement.
- Straw bales should be inspected regularly and replaced if damaged or if the retention capacity is reduced.

Excavate the trench and place and stake bales





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Environmental Policy

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

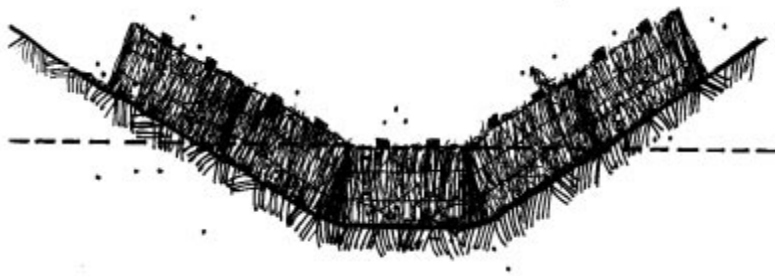
# OF PAGES: 12

### ENVIRONMENTAL POLICY

Wedge loose straw between bales. Compact excavated soil.



Location of Straw bale barrier in swale section view



#### Plastic Sheeting

Plastic sheeting provides immediate temporary erosion protection to slopes and disturbed areas, including stockpiles and is particularly suited for temporary protection and to protect against erosion during periods of heavy rain.

Plastic sheeting will result in rapid 100% run off which may cause serious erosion problems and/or flooding at slope bases unless other measures are in place.

#### Procedure

- Use 6mm plastic sheeting, or heavier
- Overlap sheeting at least 300mm to 600mm (1' to 2') and anchor with sandbags or tires, on ropes with a maximum 3m (10') grid
- Seams should be weighted down their full length
- Plastic sheeting should be inspected regularly for rips and for locations where the plastic may be dislodged. Use extreme caution around slippery plastic sheeting.

#### Stabilized Site Entrance

A pad of rock spall at the entrance to a site should be provided in order to reduce the amount of runoff and to reduce the amount of dirt and rocks transported onto public right of ways.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Environmental Policy

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## ENVIRONMENTAL POLICY

### Procedure

- Use 100 mm to 200mm (4" to 8") quarry spalls.
- The pad should be at least 300mm (12") thick by 6m (20') wide.
- For site of more than one acre, the length of the pad should be 30m (100'). For site less than one acre, the recommended length of the pad is at least 15m (50').

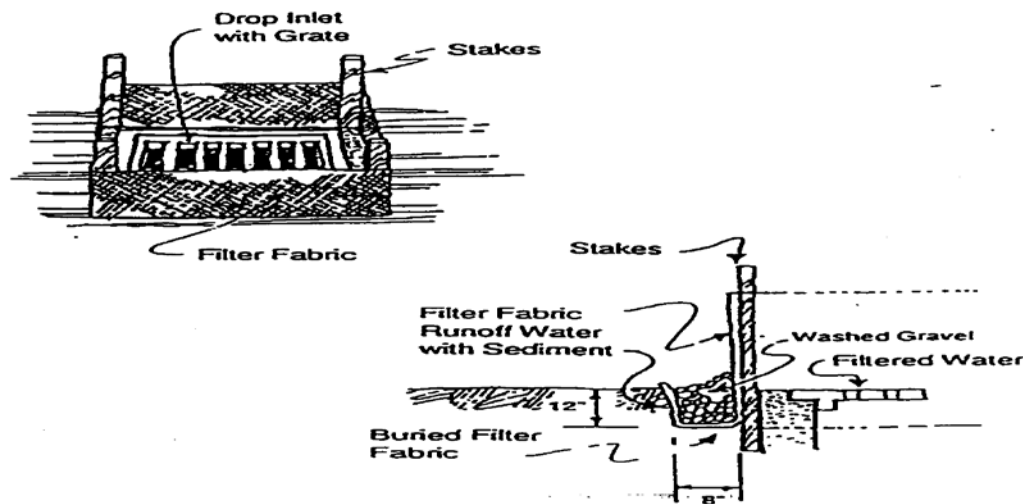
### Protection of Storm Drain Inlets

Unprotected drains that are operational before their drainage area is stabilized can convey a large amount of sediment and pollutants. Most storm drain protection procedures are adequate for drainage areas of one acre or less.

### Filter Fabric Storm Drain Protection (see also illustration)

- Place 50mm x 50mm (2' x 2') stakes around the perimeter of the inlet. Drive the stakes approximately 200mm (8") into the ground.
- Excavate a trench 200mm wide by 300mm deep (8" wide by 12" deep) around the outside of the stakes.
- Staple filter fabric to the stakes and form at least 1m (3') of the fabric into a trench.
- Back fill the trench with 18mm ( $\frac{3}{4}$ ") gravel.

**Fabric Inlet Filter**



### Block and Gravel Filter (see also illustration):

- Place 12mm ( $\frac{1}{2}$ ") wire mesh over the inlet. Extend the wire a minimum of 300mm (1') beyond each side of the inlet and place the filter fabric over the wire mesh.
- Securely anchor the perimeter of the outlet, e.g. using cement blocks. The blocks should abut and be at least 300mm (12") high.
- Place 18mm ( $\frac{3}{4}$ ") wire mesh over the outside face of the CMU blocks to prevent debris from being washed through the blocks.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Environmental Policy

PREPARED BY: HEALTH AND SAFETY TEAM

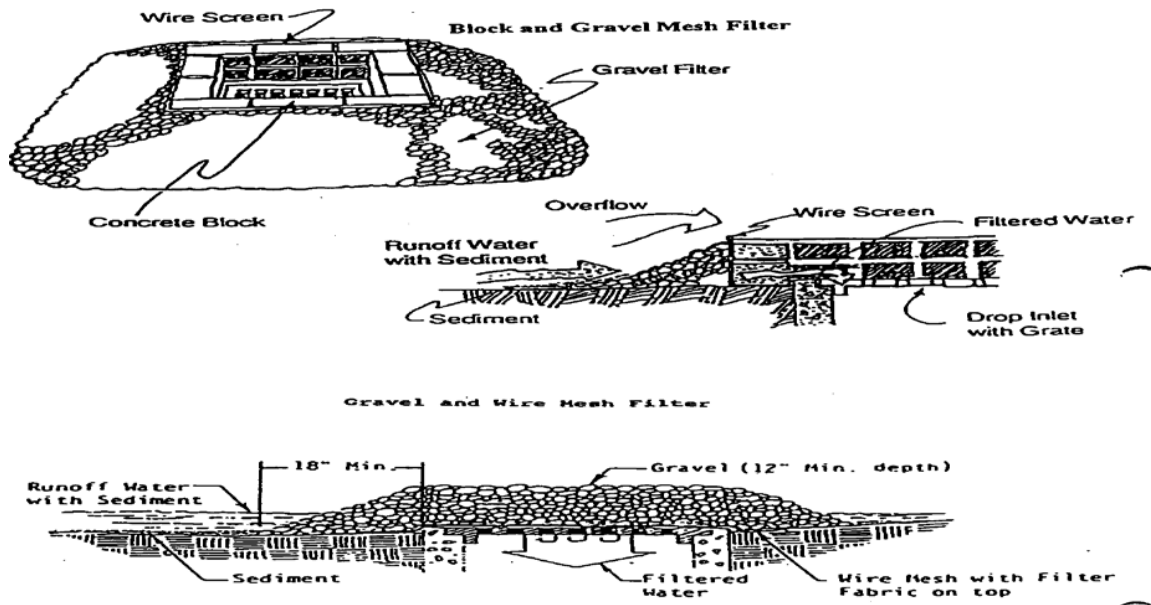
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### ENVIRONMENTAL POLICY

- Pile 18mm ( $\frac{3}{4}$ " ) or larger gravel against the wire mesh to the top of the blocks.



#### Wastes Requiring Special Management

Demolition and construction debris may contain products that are subject to special regulations. For example, mercury-containing fluorescent lamps, refrigerants containing chlorofluorocarbons (CFC's), polychlorinated biphenyls (PCB's) in electric light ballast; tile, roofing and other asbestos-based products, lead paint, silica powder and absorbent products contaminated with oils, hydraulic fluids and hazardous materials.

#### Storage and Disposal of Construction Debris

- Inspect products for hazardous warning labels.
- Segregate potentially hazardous waste products from normal construction debris.
- Choose storage areas at least 15m (50') from any receiving waters.
- Inspect material storage areas for signs of leaching.
- Discharges from sandblasting, acid washing, painting, vehicle maintenance should be contained and prevented from discharging into storm drains, sediment ponds or from leaving the site.
- Hazardous material storage areas should be isolated and contained to prevent leaching.
- Concrete truck rinsing areas should not be subject to surface water runoff, or be less than 15m (50') from a storm drain, open ditch or receiving water.

#### Work in Streams and Waterways

Work to be performed in harbours, streams, rivers, and lakes such as the construction of culverts, bridge foundations, diversion works, and power generation facilities may require permits from several different environmental branches including municipal Provincial/and/or federal authorities. As a condition of approval to



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Environmental Policy**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### **ENVIRONMENTAL POLICY**

perform work in waterways, the contractor must take adequate steps to minimize disruption or damage to the natural environment.

It will be necessary to take every means possible to mitigate damage from the following:

#### **Erosion of Banks & Siltation**

Access to the watercourse and work area should be limited to only that which is required to perform the work. Disturbance of river or streambeds shall be minimized to prevent siltation. This can be achieved by the use of siltation filtering or containment systems such as straw bales filter cloth or containment booms and dykes (see illustrations).

Diversion beams shall be protected with materials, which are not readily susceptible to erosion and the equipment required to perform the work should be chosen carefully to ensure that the methods of operation will adhere to the applicable environmental regulations.

It should be noted that work in certain watercourses is restricted to time “windows.”

when spawning fish or other wildlife are less susceptible. Other restrictions may include the quantity of flow, which can be temporarily diverted to facilitate construction.

In addition, siltation of the watercourse could adversely affect the quality of water extracted downstream of the worksite by others for drinking water supplied or commercial requirements.

#### **Pollution**

Small quantities of oil, fuel or other hazardous substances can result in extreme damage to the environment. Equipment operating on or in the proximity of waterways shall be well maintained with servicing and fueling performed away from the water if possible.

#### **Use of Water/Dewatering**

As per applicable legislation, a permit may be necessary for extraction and use of surface or well water. A permit may also be required if large volumes of water will be removed from excavations/trenches or cofferdams during dewatering activities. Its issuance is generally conditional on the applicant adhering strictly to regulations pertaining to pollution control, erosion protection, siltation, and access. Contact the H&S department for guidance when these activities are planned.

#### **Hazardous Materials – Storage, Handling & Disposal**

- Storage areas for fuel containers or other hazardous material shall be situated in a location that is not susceptible to accidental damage as a result of construction operations.
- All bulk storage for Hazardous liquids will be contained in tanks with double wall protection or have secondary containment adequate to hold the volume of product being stored.
- Spill kits will be maintained in close proximity to storage areas.
- Adequate Fire Extinguishers will be located in close proximity to storage areas.
- The areas shall be regularly inspected.
- All leaks or spills shall be isolated, contained, and cleaned up.
- Spills shall be reported immediately to the project manager.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Environmental Policy**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### **ENVIRONMENTAL POLICY**

- Storage of fuel and other flammable or otherwise hazardous material shall be in accordance with specific information provided on the product MSDS, client requirements workplace-specific and applicable regulations.

#### **Handling**

Any workers that are required to handle or otherwise work with Hazardous Materials must be:

- Trained in WHMIS
- Must Review the MSDS for the product in use
- Be made aware of the potential health effects from overexposure
- Instructed on the Personal Protective Equipment required to prevent exposure
- Instructed in the controls necessary for the safe use of the product
- Instructed in contingency plans in the event of an uncontrolled release
- Instructed in proper storage and disposal methods

#### **Disposal**

Disposal of Hazardous Materials/Waste is regulated by the applicable environmental authorities in the jurisdiction in which work is performed. Project management is responsible to ensure that all legislative requirements for the disposal of hazardous materials/waste are identified and followed including transportation.

##### **General Requirements for Disposal**

- All workers required to handle hazardous materials/waste must be trained on handling and disposal requirements.
- All waste storage areas must be configured to prevent leaking/leaching of material.
- Appropriate signage must be provided to identify the hazards.
- Wastes must be segregated as per manufacturer's requirements to prevent reactive hazards (as per MSDS).
- Only licensed waste disposal contractors that have been prequalified may be hired to remove and dispose of Hazardous materials/waste from the project.
- In client owned workplaces, all shipping of Hazardous Materials/waste must be preapproved.
- All shipping documentation/manifests must be signed by a client representative and copies kept by both DB/CF and client representatives.
- In DB/CF owned workplaces, only employees with Transportation of Dangerous Goods qualifications may develop and sign shipping manifests. Copies of which must be maintained by the applicable project manager.

#### **Waste Water Handling and Disposal**

##### **Standard**

The content of any wastewater should be known before discharging. If the contents of the wastewater are hazardous (toxic, corrosive, flammable, etc.), the wastewater needs to be disposed of in a facility authorized to dispose of hazardous waste. All necessary precaution for the protection of employees who may have to handle waste water will be taken



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Environmental Policy**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

## **ENVIRONMENTAL POLICY**

### **Procedure**

- All disposal of waste water must be coordinated with the project owner. Disposal must be in accordance with applicable permits issued for the project
- Any employees involved in the disposal of wastewater will be trained on the necessary precautions for safe handling and administrative requirements for disposal
- Dependent upon characteristics of the waste water as identified by testing Personal protective equipment such as face, hand, body/trunk protection, respiratory protection will be used as deemed necessary by the Supervisor

Consult the H&S Department for guidance in regard to testing and PPE selection.

### **Disposal of Non-Hazardous Waste & Surplus Material**

Water excavated materials should be disposed of in areas designated or approved by applicable government authorities. Contamination of surface and ground water as a result of the location or operation of the spoil site should be avoided.

Measures are to be taken to ensure that siltation and/or erosion of materials disposed or stockpiled does not occur. Temporary ditches, seeding or other siltation prevention methods outlined elsewhere readily prevent this. Littering on the project will be prohibited. Collect and disposed of other waste and debris to an approved regulated landfill or incinerator. A permit may be required from the community receiving the waste material.

### **Burning and Forest Fire Prevention**

Burning of construction refuse including but not restricted to trees, branches, waste wood, or construction materials shall only be undertaken in accordance with the conditions and requirements of a burning permit issued by the applicable authorities and shall, in all cases, comply with the requirements of applicable forest fire prevention practices.

Any burning shall comply with applicable fire codes for the area.

### **Urban Forests – Tree Protection Standard**

This guideline is established to protect our urban forests from damage during construction work activities.

Check with the local municipality for details within their jurisdiction.

### **Procedure**

Establishing a Tree Protection Zone

The following chart shows minimum required distances for determining a Tree Protection Zone. Some trees and some site conditions may require a larger Tree Protection Zone.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Environmental Policy

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### ENVIRONMENTAL POLICY

Trunk Diameter (DBH)* < 10 cm	Minimum Protection Distances Required ** 1.8 m
11 – 40 cm	2.4 m
41 – 50 cm	3.0 m
51 – 60 cm	3.6 m
61 – 70 cm	4.2 m
71 – 80 cm	4.8 m
81 – 90 cm	5.4 m
91 – 100 cm	6.0 m

Diameter at Breast Height (DBH), diameter of tree trunk taken at 1.4 m above the ground.

Tree Protection Zone distances are to be measured from the outside edge of the tree base.

Most roots of a tree are located within 60 cm of the surface and can extend 2 to 3 times the drip line dimension. The drip line is determined by the outer most extension of the tree branches.

Any area beyond the curb of a road allowance can be excluded from the Tree Protection Zone.

Any area beyond a sidewalk or driveway must be included within the Tree Protection Zone.

Within the Tree Protection Zone there must be:

- No alteration or disturbance to existing grade.
- No changes to the grade by adding fill, excavating or scraping.
- No storage of construction materials or equipment.
- No storage of soil, construction waste or debris.
- No disposal of any liquids, e.g. concrete slush, gas, oil, paint
- No movement of vehicles, equipment or pedestrians

When excavating or trenching through or near the Tree Protection Zone be sure to:

- Dig a narrow trench along the line of the excavation closest to the tree by hand digging or slot trenching using a hydro-vac. Extend narrow trench (30cm – 40cm deep) beyond Tree Protection Zone by 2m to 3m where possible.
- Cut exposed roots cleanly with a sharp cutting tool before using a backhoe. This prevents the backhoe from ripping up and damaging roots within the Tree Protection Zone.
- Leave larger roots (75mm or more) across the trench.
- Backfill with native soil.
- Consider directional drilling wherever possible.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Environmental Policy

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

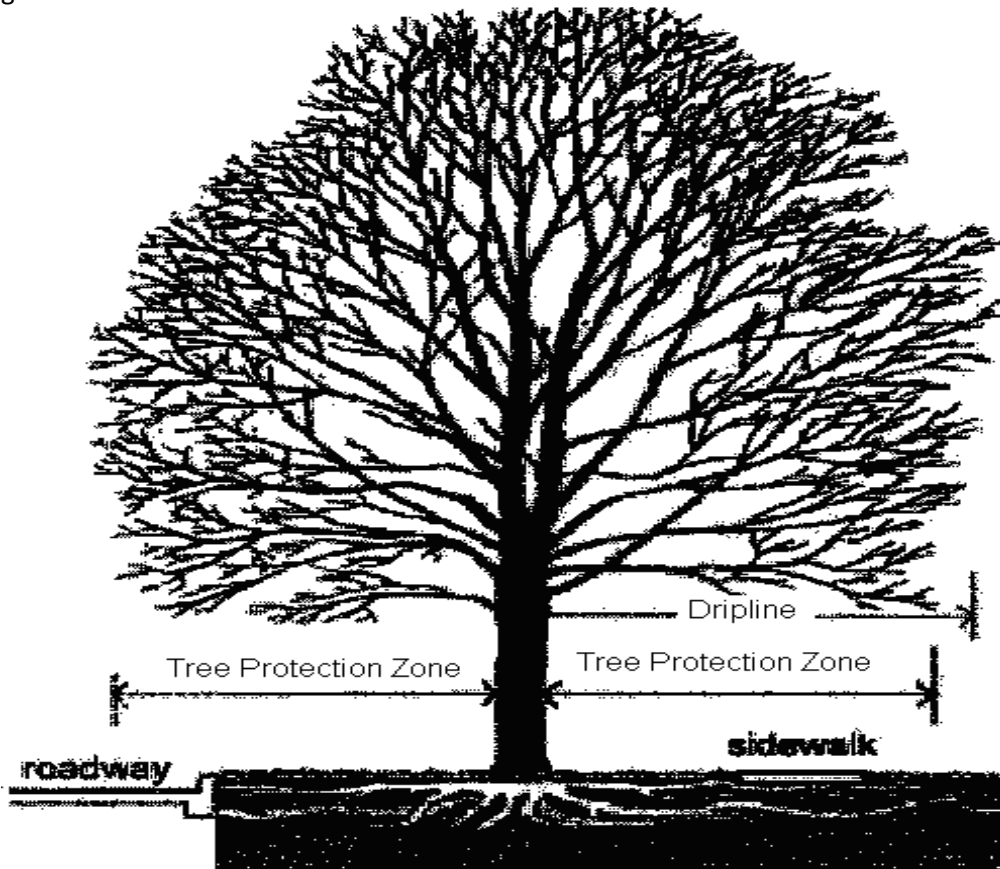
# OF PAGES: 12

### ENVIRONMENTAL POLICY

#### Tree Protection Barriers

A tree protection barrier may be installed for trees on private property situated on or adjacent to construction site work or for protection of municipally owned trees. Consult with your jurisdiction for details.

- Tree Protection Barriers must be 2.8 m high (9.2 ft), plywood clad hoarding or an equivalent material.
- On a road allowance where visibility must be maintained tree protection barriers may consist of 1.2 m (4 ft) high orange plastic web snow fence on a wooden 2" x 4" frame.
- Where some excavated material or fill has to be temporarily located near a Tree Protection Barrier, plywood must be used to ensure no material enters the Tree Protection Zone.
- All supports and bracing should be outside the Tree Protection Zone. All such supports should minimize damage to roots. Underground utility locates must be obtained before support stakes are driven into the ground.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Environmental Policy

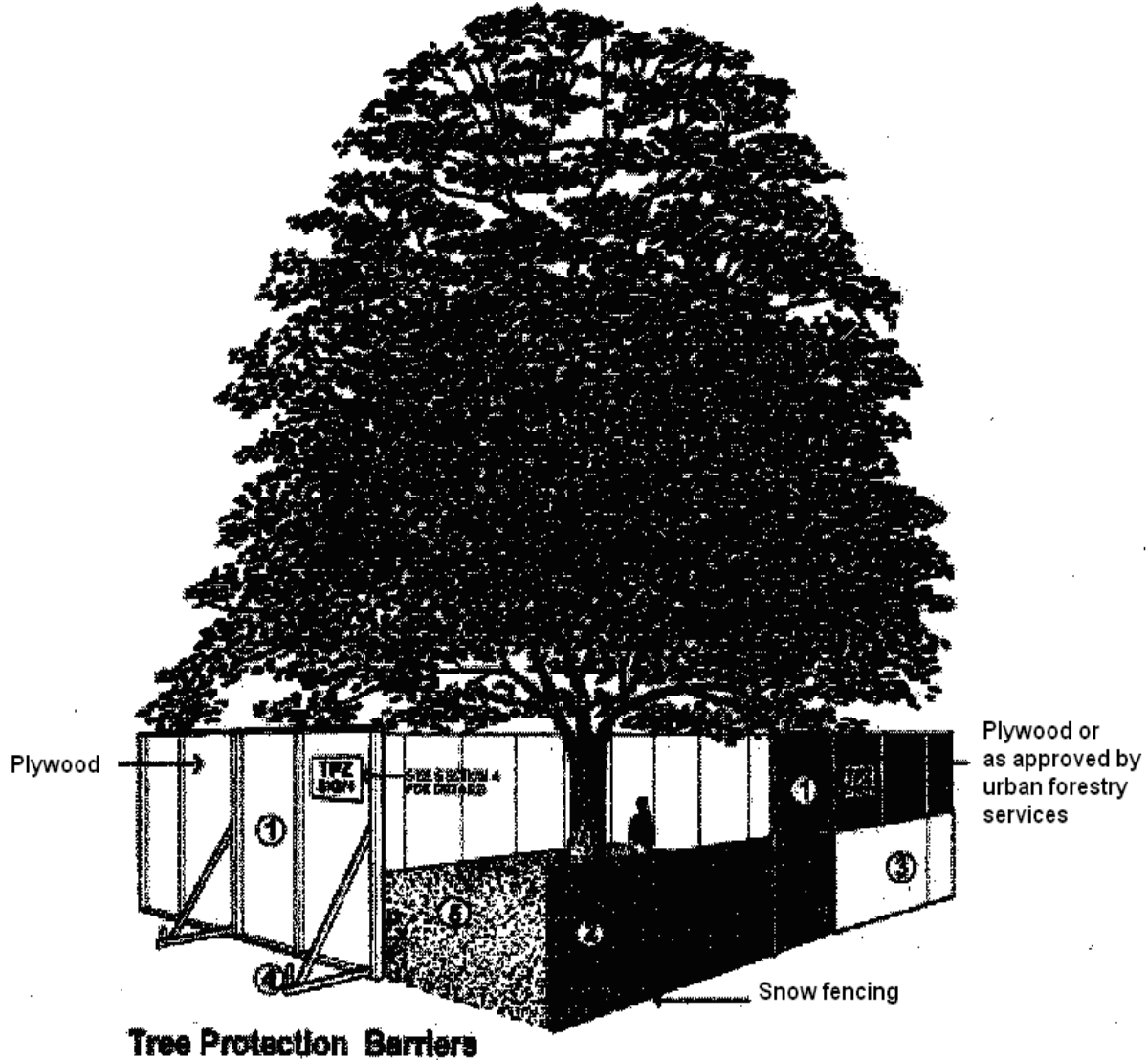
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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### ENVIRONMENTAL POLICY



#### Environmental De-Mobilization

CF's sustainable environmental commitment must continue during the demobilization period on every project. The following safe work practice is designed to assist supervisors and educate workers in determining the proper disposal procedure for hazardous products during the demobilization period. The purpose of this practice is also, to ensure all products whether destined for disposal or re-use are transported in accordance to the Transportation of Dangerous Goods Act and are disposed of according to the Material Safety Data Sheet.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Environmental Policy**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 12

### **ENVIRONMENTAL POLICY**

Supervisors must ensure that any product regulated by the Transportation Dangerous Goods Act is not placed or stored in any tool box, gang box or sea container destined for offsite shipping unless the truck/transport is licensed to haul hazardous waste accordingly.

Supervisors must also ensure that in the event that regulated goods are being transported that a qualified person is assigned the duties of preparing the Dangerous Goods and the associated paperwork for shipment.

#### **Demobilization Preparation Steps**

- Establish a Hazardous Waste Drop off center where products can be placed onsite (if possible).
- Establish spill kits and fire extinguishers in close proximity of the drop-off area.
- Review the MSDS Sheet for Regulatory Disposal procedure and the PPE use during disposal. Train all workers to these steps.
- Ensure all containers are marked with a proper WHMIS label.
- Provide the MSDS Sheet for all hazardous waste products destined for disposal to the licensed hauler.

#### **Energy Conservation and Carbon Emission Reduction Anti-Idling**

Vehicle and equipment idling times will be reduced whenever possible in order to lower fuel consumption and subsequently, carbon emissions. Operators are to communicate with supervisors about the timing requirements of the equipment and turn equipment off where practical.

#### **Cab Heaters**

Operators are to make use of installed cab heaters over idling engines to provide heat into vehicles.

#### **Engine Tracking Technology**

Machinery and equipment may utilize tracking technology in order to ensure engines are running efficiently and properly.

#### **Light Emitting Diode Lighting**

Use Light Emitting Diode (LED) lighting over incandescent bulbs. LEDs unlike ordinary incandescent bulbs have no filament. They require less energy, produce less heat and last an average six times longer than incandescent bulbs.

#### **Air Conditioning**

Turn vehicle air-conditioning units off when not required. Air-conditioning systems draw loads from engines that reduce fuel economy and increase carbon emissions. Adjust room temperatures when possible to reduce electrical demands or diesel demands when in use of generators.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Waste Management**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

# **WASTE MANAGEMENT**

## **PURPOSE**

CF recognizes that to operate our business that impinges upon certain aspects of the environment in a responsible and ethical manner, the need has arisen to plan and organize a pro-active and positive approach to dealing with environmental issues. It is the intention of SR management and personnel that they will adhere to this approach to the best of their abilities. The importance of reducing, reusing and recycling construction waste on our projects will be a focus of this proactive approach. The implementation of a waste management plan will put less stress on landfill sites and benefits such as preserving raw materials, protecting the environment and energy use will be realized.

## **SCOPE**

### **Source Separation Program**

Each project must have a method of separating at a minimum, the 4 basic waste categories (if applicable):

- Wood
- Corrugated cardboard
- Steel and other metals

Other materials that may also be included in a separation program, which should also be identified by the audit, can be:

- Rigid plastic, plastic film, and polystyrene packaging;
- Wooden shipping pallets

The processing of waste material may involve the compaction, size reduction and separation of materials.

There are two primary methods to separate waste:

- Onsite: Have separate bins designated for each material to be specifically separated in their own container
- Transfer station: Sometimes due to project size, cost etc. it is not practical to have multiple waste bins onsite.

It is also acceptable to send all waste to a transfer station where all waste is separated into the categories

(cardboard, brick/concrete, steel, wood). However, if a project

chooses to utilize a transfer station there must be supporting documentation showing follow up that the transfer station is actually separating waste. This can be accomplished by a visit to the transfer station, or verification from the source receiving the separated waste etc.

Consider on-site conditions to determine the separation method and collecting, handling storing, and removing.

- Plan for bin size
- Material type
- Location of collection
- Ensure the material is transferred on a regular basis so that housekeeping does not become an issue.
- Control where the material is to be collected and ensure it is not cross contaminated by other products.

### **Hauling**

- Contact a hauler to remove all the waste generated material from the project
- Ensure they provide you with all the appropriate documentation



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Waste Management**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### **WASTE MANAGEMENT**

- All contracts with disposal companies should include the provision that all material removed from site will go to an approved facility and comply with legislated requirements. The source separation program is key to maintaining reuse and recycling strategies onsite and must be posted in the workplace and communicated to all workers.
- Subcontractors are required to adhere to source separation and plan objectives. If a subcontractor elects to utilize their own disposal bin onsite, they must provide CF with a record of the disposal for documentation purposes.

#### **Completion**

All documentation should be kept onsite for the duration of the project and maintained for at least five years with project documentation.

#### **Hierarchy for Common Materials Types of Construction Waste Material**

##### **Wood**

Wood waste generally covers the following components:

- Pallets
- Wood building material
- Site excavation wood

##### **Reduce:**

- Review design of the project – for optimal use of the lumber, subflooring and sheathing.
- Provide detailed framing layouts to ensure accurate lumber ordering.
- If possible have studs and joists pre-cut to reduce on-site waste.
- Plan for the salvage of demolition lumber. Contact companies that buy recovered wood.
- Use prefabricated wood, roof and floor systems where these products are produced off site - centralize waste at the manufacturing location versus the project.
- Buy kiln dried lumber and store properly to reduce waste from warping and shrinking.

##### **Reuse:**

- Organize a central cutting area – reusable cutoffs can be kept for bridging, blocking and back framing.
- Transport leftover lumber to other projects.
- Reuse salvaged timbers and other dimensional lumber from demolition.
- Send all pallets to a repair facility where they can be rebuilt for reuse.

##### **Recycle:**

Wood can be re-cycled into products such as press wood, panel-board, chipboard, pressed logs, landscape covering, absorbent, etc.

- Hardwood can be recycled and used for central heating plants.
- Most wood chippers/grinders accept wood embedded with nails, staples and fasteners.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Waste Management**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

## **WASTE MANAGEMENT**

Disposal:

- To discourage excessive dumping of wood products, certain landfills raise tipping fees. In fact, many landfill operations will require that this material be brought to sorting and recycling facilities.

### **Ferrous and Non-Ferrous Metals**

These types of waste products normally associated with construction activity are:

- Structural steel
- Steel studs
- Electrical products – cable trays, wire etc
- Mechanical products – pipes, equipment, containers etc
- Roofing products – metal flashing, siding etc
- Re-bar

A variety of arrangements can be made with recyclers including having special containment equipment brought to the project to facilitate the collection process.

Reduce:

- Order material efficiently to minimize waste.
- Measure and cut material accurately.
- Plan mechanical and electrical runs to reduce material.
- Locate electrical panel near area of greatest need.
- Keep accurate inventory of surplus material to reduce over-supply at future projects.

Reuse:

- Store cuttings in a central location for reuse.
- Use surplus material for the projects

Recycle:

- Scrap dealers pay for and recycle metals. Investigate pick-up and transport options.

Disposal:

- Most disposal facilities generally prohibit the disposal of large quantities of metal products. Discuss with recycle scrap dealers.

### **Corrugated Cardboard**

Most cardboard comes from packaging material. This product is readily recyclable. Reduce:

- Purchase materials in bulk to reduce packaging.
- Require suppliers to deliver with minimal packaging.
- Give preference to suppliers who will retrieve their material packaging.

Reuse:

- Cardboard boxes can be used for material storage



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Waste Management**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

## **WASTE MANAGEMENT**

### **Recycle:**

- Can be recycled into paperboard boxes, cores, and manufactured into new corrugated boxes.
- Other building material for example, roofing felt, fibreboard and floor underlay.
- Many companies will provide storage bins on the project to collection purposes.

### **Disposal:**

- Bring to a recycling facility.

### **Plastics and Vinyl**

Sophisticated methods now allow for the recycling of all sorts of plastics for example, bags, drainage tiles, siding, traffic cones, floor tiles etc.

### **Reduce:**

- Where possible reuse plastic packaging.
- Used standard dimensions to reduce cutting of plastic products, such as tiles, siding etc.

### **Reuse:**

- PVC piping can be reused for plumbing on other projects. Check with local authorities for specific requirements.

### **Recycle:**

- Recycling is complicated by the need to separate plastics. Contact your local plastic recycler for assistance.

### **Disposal:**

- Plastic wastes are high in volume and they do not degrade in landfills. Recycle as required

### **Shops**

- Catch and collect all oils and fluids for proper disposal, recycling.
- Crush used oil filters to extract all oil, then sends filters for recycling of metal.
- Use biodegradable cleaners, degreasers, and detergents in normal shop usage (eg. citrus cleaning products).
- Set up proper above-ground fuel storage and oil storage with containment dykes surrounding them.

### **Supply Routes**

- Follow all rules and regulations pertaining to the transportation of dangerous goods.
- Follow proper reporting in case of spills and emergency response procedures.
- Request owner/operators to monitor and maintain the condition of their vehicles to manufacturer's standards.

### **Materials**

- Use environmentally friendly materials wherever possible.
- Follow proper procedures when handling hazardous goods.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Waste Management**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 5

### **WASTE MANAGEMENT**

- Recycle and reuses materials whenever possible.

#### **Service of Equipment**

- When servicing, catch and collect all used fluids and equipment parts (filters) that can be recycled or reused.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

# **SAFE WORK PRACTICES**

## **PURPOSE**

Safe work practices cover typical daily activities in the workplace; such as use of tools, equipment, and vehicles and work methodology. CF recognizes the importance of safe work practices in all our workplaces. It is imperative that all workers adhere to these practices to maintain a safe working environment.

## **SCOPE**

The safe work practices contained in this section are to be used as working guidelines; some jurisdictions may have variations to these practices. Review all pertinent requirements in your area.

Project managers are responsible to ensure that regulations and all applicable legislative requirements for the jurisdiction are met.

All CF workers are required to maintain safe work practices in their workplace.

The best practices in this section are to achieve general compliance to safety requirements in construction, and industrial settings.

Project management and direct supervision play a major role to ensure that the internal responsibility system of informing, directing, and maintaining compliance to health & safety standards is always achieved in the workplace.

If the supervisor or manager is aware of a more convenient, more effective and efficient practice that does not compromise health & safety these practices may be substituted provided that they comply with all applicable legislative requirements.

## **PRACTICES**

### **Ladders Standard**

Workers involved in the use of ladders shall be familiar with their characteristics and the necessary safety precautions.

#### **Practice**

- The ladders supplied must be in good safe working condition as recognized through inspection, see H&S\_FORM\_036.
- Any ladder, which becomes unsafe to use must be tagged and / or identified unsafe for use and then reported to the supervisor, who will decide whether to arrange for repairs or destruction. Defective ladders should not be kept around the project, as they will eventually be used.
- Manufactured ladders are a uniform design. Job built ladders requires 300 mm (12") spacing for the rungs and 400 mm (16") spacing for side rails. Use 38 mm x 89 mm (2" x 4") side rails up to 5.8 m (19'), 38 mm x 140 mm (2 x 6) side rails for ladders longer than 5.8 m (19').
- If used as a regular means of access:
  - Fasten securely in place;
  - Allow to extend at least 1 m (3') above landing area;
  - Allow at least 150 mm (6") toe space behind rungs; and



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Keep a 1.8 m (6') clear area at bottom and top.
- When used as temporary access, a ladder must be either securely fastened in place or held by another worker. Maintain 3-point contact; always face the ladder, and only use for access / egress purposes.
- Aluminum, metal or conductive ladders must not be used in close proximity to energized equipment.
- Studies have shown that falls from ladders can result in serious injuries. Set them up securely and keep belt buckle inside side rails. Mount/dismount while facing the ladder.
- The base of the ladder should be angled 4:1 or 3:1.
- When a stepladder is being used as a self-supporting unit, its legs shall be fully spread and its spreader shall be locked and shall be level on solid ground.
- Do not stand any higher than the second last rung of a stepladder.
- A stepladder should be used only for short-term light duty work. Otherwise, use a scaffold or man lift.
- Workers working on ladders who are exposed to a fall hazard as specified in the PPE section Fall Arrest must be protected by fall protection as outlined in Fall Arrest Practice.
- Only CSA Grade 1, Grade 2, or Job Built ladders will be allowed on a project.

#### **Ladder Handling**

1. Lay fully retracted ladder on its side on the ground, with fly-side facing away from you, and ladder-feet behind you to your right.
2. Count the number of rungs on the base, note where the centre of the ladder is then walk along the ladder to the first base-rung past the centre.
3. With your body at right angles to the ladder, and without twisting or bending your back, bend your knees and grasp one of the upper rails in each hand, right hand behind the left.
4. Straighten legs and stand, allowing arms to fully extend.
5. Walk forward carefully. If you need to turn, do so with your feet not your waist.

#### **Raising/Lowering an Extension Ladder**

Get help raising any ladder that you do not feel comfortable raising/lowering alone.

1. Position the ladder fly side up, at right angles to the wall and with the top end of the ladder approx. 3-feet from the wall.
2. While standing in front of, and facing, the top of the ladder, bend knees slightly, grasp and lift both base rails and straighten up, while retaining a loose grip on each rail.
3. Walk toward the centre (approx. Balance-point) of the ladder, while sliding your hands along the rails.
4. Firmly grasp both rails and extend your arms to a full upright position.
5. Walk backwards towards, and rest the top of the ladder against, the wall.
6. Walk to a position immediately behind the ladder feet, and while bracing the ladder feet to keep them from moving, extend the fly to the appropriate height.
7. Grasp the ladder rails at waist height, lift the foot end clear of the ground then move toward the wall until the long-leg on the set-up-assist label is vertical, or the foot of the ladder is 1- foot out from the wall for every 4-feet of height to the ladder support point.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

8. If you are on a hard, clean, non-slip surface ensure that each rubber foot pad is resting squarely, and evenly on the surface.
9. If you are on a soft, loose, or slippery surface, rotate each ladder foot until the "picks" are behind the base rail and pointing down. Using your foot, on the bottom ladder rung, push each pick into the ground as far as possible.

#### **Scaffolds - General Requirements**

##### **Standard**

Workers involved in the use of scaffolds shall be familiar with their characteristics and the necessary safety precautions. Please see attached scaffold checklist, see H&S\_FORM\_037.

##### **Practice**

- All scaffolding must have solid footing or anchorage capable of supporting the intended loads without settling or shifting.
- No objects such as barrels, bricks, blocks, boxes, etc. can be used in conjunction with a scaffold.
- Erection, alteration, or dismantling of a scaffold shall be supervised by a competent person.
- Scaffold planks shall be Construction Grade Spruce, Number 1 Grade Spruce, or stronger. [Actual size 50 mm x 3 m (2" x 10') rough cut] Maximum span is 2.2 m (7'). Certified laminated planks (OHSA Burke) are available on request. Also, the planks must be secured to prevent movement (e.g. cleats, nails, or wire). See jurisdiction in your area.
- All fittings and gear shall be used.
- When height of a scaffold exceeds three times the least lateral base dimension:
  - increase base lateral dimensions accordingly with outriggers, or
  - Tie securely into the structure every third lift
- All scaffolding shall have perimeter guardrails, top rail at 1.1 m (42") high, a toe board, and a mid-rail. If room does not permit railings, workers on the platform (minimum two planks) shall wear a full body safety harness and shock-absorbing lanyard secured to a solid part of the project.
- All scaffolding shall be fully planked; where this is not practical, workers shall wear a full body harness and shock-absorbing lanyard secured to a solid anchorage. Never less than two planks or 460 mm (18").
- Maximum space between planks is 13 mm (½ "). Planks from one scaffold to another must overlap by 300 mm (12") or more AND be secured to each other. Cover overlaps with plywood to reduce the trip hazard.
- Planks may extend over end supports 150 mm to 300 mm (6" to 12"). Planks must be cleated or otherwise secured.
- Scaffolds exceeding 15 m (50') in height from its base support, or 10 m (30') for tube, clamp-type scaffolds, or suspended scaffolds, shall be designed and inspected by a professional engineer prior to use.
- Scaffolds shall be erected level and plumb by means of screw jacks and base plates. Where ground deflection is possible, compaction is required followed by the use of mud sills.
- Screw jacks and base plates may be replaced by manufacturer supplied casters/wheels whose brakes will be applied at all times except when being moved.
- Running scaffold requiring anchorage due to its height shall be tied into the structure every 10 m (30') horizontally or as applicable jurisdiction.
- Access to the scaffold platform shall be by properly sized ladder.
- Rolling scaffolds shall not be moved with workers on board.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Rolling scaffolds must have brakes locked while a worker is on it.
- Most manufactured tubular scaffolding with standard planking is rated for a capacity of 11 kilo-newton's (2,500 lbs) uniformly distributed and 2.6 kilo-newton (600 lbs) concentrated centre point loading. Refer to manufacturer instructions, or design requirements, to ensure the safe working load is not exceeded.
- Masonry units (bricks, blocks) are to be distributed evenly over the working platform of the scaffold. Loaded skids should be over top of the scaffold frame.
- The worker should check the scaffolding daily and defects are to be reported to the supervisor for correction. As a guideline, use scaffold checklist. Modify as required.
- Any hording affixed to any scaffold that may affect wind loading such as wood, wraps/tarps must be considered into the overall design of the scaffold. This material may also be required to be flame retardant pending the application. Please consult the H&S Dept.

Note: An engineered scaffold is not to be altered unless approved by the engineer that designed it.

#### **Tie-Ins**

Tie-ins anchor a scaffold to the structure it serves, preventing the scaffold from falling into or away from the structure. Tie-ins also improve the scaffolds lateral stability by bracing the structure.

Guidelines for tie-ins are 4.6 meter (15 ft) vertical and 6.4 meter (20) horizontal intervals

Consult local requirements, design standards and engineering practices when using and installing tie-ins.

#### **Hoarding**

Hoarding refers to tarps or other material used to cover a scaffold. When hoarding is used, the stress on the ties stabilizing the scaffold increases due to wind loading.

Guidelines for tie-ins for hoarded scaffolds are 3 meter (10 ft) vertical and 3 meter (10 ft) horizontal.

Consult local requirements, design standards and engineering practices when installing hoarding.

**Note:** Hoarding material may be required to be fire rated pending the activity being performed inside the hoarding. (Welding, burning etc)

#### **Base Plates**

Base-plates distribute concentrated leg loads over a larger area. They also connect scaffold standards and mudsills. They are attached usually with pins and locking devices. Base-plates usually have predrilled nail holes for attaching the plates to a mudsill.

#### **Scaffold Tagging**

Some workplaces may require the standard use of a scaffold tagging system to identify the status of use and last date of inspection. Where this is required the following practice is to be followed.

- Scaffolds must be inspected prior to initial use and at intervals not exceeding 7 calendar days.
- Scaffolds are to be inspected by a competent worker who is experienced in the erection of scaffolds.
- Inspection of scaffolds must include - but is not limited to:



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- o Damage to frames, braces, base plates, clamps and other structural components Guardrail, mid-rail and toe boards condition
- o Ladders and ladder gates/fences
- o Damage to hooks on manufactured platforms
- o Splits, warps, knots and dry rot in planks
- o Lamination defects in veneer planking
- o Compatibility of components
- o Proper amount and correct mix of components

Defective components found during any inspection or which have been identified through any other source must be removed and replaced immediately.

The results of the scaffold inspection are to be documented and displayed on a solid colour coded tag posted at each point of entry.

All scaffold tags will be of a solid red, yellow or green color with black lettering.

GREEN or "Safe For Use" tags will be hung on scaffolds that have been inspected and are safe for use.

YELLOW or "Caution – Potential Hazard" tags indicate that a scaffold is safe for use but there are some other hazards. The tag must identify the REASON for the caution and the POTENTIAL HAZARD

RED or "Not Safe For Use" tags will be posted prior to initial inspection of a scaffold or when the scaffold has been deemed unsafe for use. The REASON must be written on the tag as:

- Under Erection
- Being Dismantled
- Repairs Required
- Overhead Protection Only

Scaffold tags shall display as a minimum:

- Date of last inspection
- Inspection expiry date (Next Inspection Due)
- Inspected By – name and signature
- Date erected
- Duty rating
- Possible hazards (Yellow tags only)
- Scaffolds that have no tag displayed are deemed RED tagged and are NOT TO BE USED

Note: Please consult the H&S Department for further instruction and use.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

#### Ramps, Runways and Platforms Standard

Temporary structures used for access shall be constructed, installed, and used so that an injury will not result.

##### Practice

- In general, a ramp, runway, or platform must be able to support 50 psf (2.4 kilonewtons) and be at least 460 mm (18" wide). This is roughly equivalent to two scaffold planks spanning no more than 2.4 m (8' wide).
- Maximum gradient of slope = 1:3  
Ramps that are not nearly horizontal need 19 x 38 mm (1" x 2") cleats space regularly at 46 cm (18") securely nailed to the walking surface.
- Where there is danger from falling materials, a ramp, runway, or platform shall be covered by a canopy of adequate strength.

Platforms have the same safety requirements as scaffold platforms - Safe Work Practices – Access Structures - Scaffolds

- If it is possible to fall a vertical distance of 2.4 m (8') or into water from a ramp, runway, or platform, guardrails shall be erected.
- If a wheelbarrow or other similar conveyance is used on a ramp, runway, or platform AND if it is possible to fall, 1.2 m (4') guardrails shall be installed.

#### Compressed Gases – General Information

##### Standard

All workers involved in the use of compressed gases shall be familiar with their characteristics and the necessary safety precautions.

##### Practice

The supervisor shall discuss the following general characteristics in crew safety meetings:

- Acetylene
  - o This highly flammable hydrocarbon fuel combines with oxygen to produce industry's hottest flame (5900 degrees Fahrenheit - 3255 degrees Celsius). The danger of explosion is high because the gas is very unstable. Acetylene cylinders are packed with a porous material saturated with acetone to make storage, transportation, and usage safe. Never use acetylene above 15 psig; alternatively, with copper and copper alloys.
- MAPP
  - o Methylacetylene-propadiene can replace acetylene for most operations. MAPP is very stable and has a very strong odor. MAPP can be used safely at higher pressures than acetylene.
- Hydrogen
  - o The lightest gas known is highly flammable and burns in air with an almost invisible blue flame. Hydrogen and oxygen combine to produce a cooler flame (4000 degrees Fahrenheit - 2200 degrees Celsius) than acetylene; so it is suitable for brazing aluminum, magnesium and in welding lead.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

- Oxygen
  - o The most important gas in the world. Oxygen is non-flammable but nothing can burn without it. 21% oxygen supports normal combustion. Pure oxygen can cause spontaneous combustion when combined with grease or oil.
  - o Never use oxygen as a substitute for compressed air to operate pneumatic tools.
- Argon, Helium, Nitrogen, Carbon Dioxide
  - o Good ventilation is required when using any gas. These gases at high concentration cause asphyxiation. Apart from the hazard of rupturing cylinders these gases are non-hazardous, non-flammable and inactive.

#### Compressed Gas Welding

##### Standard

All workers involved in the use of compressed gases for welding shall be familiar with their characteristics and the necessary safety precautions.

##### Practice

1. Locate cylinders away from sources of excessive heat or physical damage. They should be secured upright in a cylinder truck or against a firm support.
2. Slightly open ("crack") and then close immediately the cylinder valves (except for hydrogen gas) to blow out dust and foreign matter that could restrict the gas flow or damage the regulator seats. Stand to one side of the cylinder valve outlet when doing this.
3. Attach the oxygen and fuel gas regulators to their respective cylinders. Screw the nuts tightly with the proper wrench. Never force poorly fitting connections.
4. Make sure the pressure adjusting knobs or screws on the regulators are released.
5. Connect the green hose to the oxygen regulator and the red hose to the fuel gas regulator.
6. Connect the hoses to the torch -- green hose to the oxygen inlet and red hose to the fuel gas inlet.
7. Connect mixer and welding tip (or tip assembly) to torch handle.
8. Open the oxygen cylinder valve slowly and completely.
9. Open the fuel gas cylinder not more than one full turn.
10. Open the oxygen torch valve and turn the pressure adjusting screw on the oxygen regulator to the desired pressure. Continue the oxygen purge for approximately ten seconds for each 30 m (100') of hose. Close oxygen torch valve.
11. Open the fuel gas torch valve, turn the pressure adjusting screw on the fuel gas regulator to the desired pressure, and continue purging for ten seconds for each 30 m (100') of hose. Close the fuel gas torch valve.
12. To light the torch, open the fuel gas torch valve 1/2 turns and immediately lights the tip with a spark lighter. DO NOT USE MATCHES OR LIGHTER. Open the fuel gas torch valve further until the flame is free of soot.
13. Open the torch oxygen valve and adjust until a neutral flame results.
14. To weld, wear snug fitting goggles with properly coloured and designed lenses and follow MSDS for type of respiratory requirements.
15. Ensure a fire extinguisher of suitable size and classification is readily available during all welding operations.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

## SAFE WORK PRACTICES

### Compressed Gas Cutting Standard

All workers involved in the use of compressed gases for cutting shall be familiar with their characteristics and the necessary safety precautions.

#### Practice

The practice for setting up to use cutting torches or cutting attachments is identical to procedure Compressed Gas Welding (Safe Work Practices – Compressed Gas Welding), except that when adjusting the oxygen regulator pressure (Step #10) both the torch oxygen valve and the cutting oxygen valve must be open.

### Dismantling Equipment

#### Standard

All workers involved in the use of compressed gases shall be familiar with safe dismantling practices.

#### Practice

1. Close the torch oxygen valve.
2. Close the torch fuel gas valve.
3. Close the fuel gas cylinder valve.
4. Close the oxygen cylinder valve.
5. Open the torch fuel gas valve and bleed the fuel gas line. Release the fuel gas regulator knob.
6. Close the torch fuel gas valve.
7. Open the torch oxygen valve and bleed the oxygen line. Release the oxygen regulator knob.
8. Close the torch oxygen valve.
9. Ensure a fire extinguisher of suitable size and classification is readily available during all compressed gas cutting operations.

Note: Regulators and torches can now be disconnected or, if the shutdown is temporary, the torch can be hung in a safe place. Torch heads must never be locked in toolbox or left inside a confined space while still connected to the hose and bottle.

### Compressed Gas Equipment - Defective Equipment Standard

All compressed gas equipment shall be free of defects when in use.

#### Practice

- Compressed gas equipment shall be inspected for defects prior to use.
- Damaged, leaking torches, regulators, hose, and accessories must be taken out of service.
- Repairs may be made by authorized workers or replacements shall be supplied by the supervisor.
- Keep equipment clean by using oil-free rags.
- Never oil any regulator or cylinder valve because of the likelihood of explosion/fire.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- A soap bubble test must be conducted at the connection to ensure no leaks on compressed gas system. All associated gaskets are to be installed prior to test and use. (Ensure the soap does not have an oil, fat or grease base)

#### **Hose Inspection**

Routine hose inspection should be conducted by a competent operator to ensure safe operation of equipment.

The operator(s) should look for evidence of the following before use:

- Cracking on hose surface;
- Deep cracks;
- Exposed braiding;
- Burns;
- Separation of hose layers;
- Bulges
- Sponginess;
- Degraded hose should be replaced with new hose of the proper grade for the application

While in use ensure:

- Hose is not to be subjected to sparks, hot metal or slag;
- No sharp objects, kinks or sharp bends, tension, or strain;
- Hose shall be kept from the path of heavy equipment and vehicle traffic;
- Upon shutdown, or when equipment is used infrequently, all residual pressure shall be safely released from the apparatus and hose.

#### **Backfires and Flashbacks Standard**

Flashback arrestor valves shall be installed on both hoses and at the torch end to prevent flashbacks or as per the manufacturer's instruction.

Practice

Backfires:

- When flame burns back into tip
- Accompanied by loud popping sound
- Caused by touching tip to work
- Caused by insufficient gas pressures

Flashbacks:

- When flame burns back into torch
- Accompanied by loud hissing sound
- Can be very dangerous
- If flashback occurs:
  - o Turn off oxygen torch valve immediately
  - o Turn off fuel gas torch valve



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

- o Turn off oxygen cylinder valve
- o Turn off fuel gas cylinder valve
- o Thoroughly inspect the torch regulators and hoses
- Sometimes caused by incorrect gas pressures
- Sometimes caused by incorrect tip
- Check manufacturer's recommendations

IMPORTANT - Repeated flashbacks indicate serious problems in the equipment. Eliminate the problems prior to reusing. If you are not sure, ask your supervisor.

#### Safe Handling of Compressed Gases

##### Standard

All workers involved in the use of compressed (liquid) oxygen and nitrogen shall be familiar with their characteristics and the necessary safety precautions.

##### Practice

- Oxygen, nitrogen, argon and other elements normally exist as gas. When compressed into a liquid form they have ultra-cold temperatures:

	Degrees °F	Degrees °C
Carbon Dioxide	-109	- 78
Xenon	-163	-108
Krypton	-244	-153
Oxygen	-297	-183
Argon	-303	-186
Nitrogen	-320	-196
Neon	-411	-246
Hydrogen	-423	-253
Helium	-452	-269

- A small volume of liquid gas evaporates to several hundred times this volume as a gas. Containers of liquid oxygen or liquid nitrogen must not be sealed. Explosion may result.
- Warning signs must indicate the presence of liquid oxygen - prohibiting flames, heat, and smoking. If combustibles are accidentally impregnated with liquid oxygen, they should be allowed to "air" for at least one hour in open air.
- Liquid oxygen, if accidentally spilled on asphalt, may cause an explosion spontaneously.
- Because of the potential for oxygen displacement, leading to asphyxiation, proper ventilation is the major precaution to take with liquid nitrogen.
- Evaporating liquid oxygen in a confined space or building will cause oil or grease to burn spontaneously.
- Contact with the skin causes a reaction similar to a burn.
- The term "cryogenic" refers to very cold liquid gases.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

- Refer to product MSDS sheet for specific personal protective equipment to be used while handling, transporting or using the compressed gas.

Example: Propane: When handling propane safety glasses, face shield, neoprene gloves (impermeable gloves), and coveralls are required.

#### Cylinder Storage Standard

Compressed gas cylinders shall be stored so that no damage may occur.

##### Practice

- Store oxygen and fuel cylinders at least 6 m (20') apart.
- If the above is not practical, separate oxygen and fuel gas cylinders by means of a one- hour fire-resistant wall 1.5 m (5') high.
- Store oxygen and fuel gas cylinders on a fireproof surface outside.
- Keep cylinders away from:
  - o Open flames o Electric arcs o Molten slag o Sparks
  - o Exposure to sun
- Cylinders are not designed for temperatures above 54°C (130°F).
- Keep cylinders at least 6 m (20') from flammable materials:
  - o Paint
  - o Oil
  - o Solvents
- Identify storage areas. Clearly post "NO SMOKING".
- Secure all cylinders upright.
- Keep full and empty cylinders separated.
- Close valves of empty cylinders and fit screw caps. Mark empties "MT" with chalk. Empty cylinders must be moved outside as soon as disconnected.
- Do not accept unmarked cylinders. All cylinders must have a WHMIS / Hazard Communications label.
- Provide adequate fire extinguishers within 10 m (30') of cylinder storage areas.
- Post signs to prohibit parking within 10 m (30 ' ) of a cylinder storage area.
- The control valve of a storage cylinder for compressed gas, other than a cylinder connected to a regulator, supply line, or hose, shall be covered by a protective cap that is secured in its proper position.

#### Propane Cylinder Inspection

##### Standard

Propane cylinders must be inspected to ensure they meet regulatory compliance.

##### Practice

Cylinder inspections shall be documented on the Propane Cylinder Inspection Checklist, H&S\_FORM\_038.

#### Temporary Heat Standard

Temporary heat shall be arranged so that no danger of uncontrolled fire or atmospheric hazards exists.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

#### **Practice**

- Combustibles such as tarpaulins, wood and flammable liquids will be positioned no closer than 3 m (10'). If combustibles are in the direct flow of heat, no closer than 6 m (20').
- Safety features on the heaters must be operating properly. Check this feature. Contact the manufacturer/supplier for further information.
- Heaters cannot be set on combustible materials and must be protected from damage due to overturning.
- The temptation is great to locate heaters near a means of access/egress because fresh air is available for combustion. It is against the law to restrict access/egress with a portable heater.
- Fuel lines must be guarded to prevent accidental damage.
- When open flame heaters are operating continuously, a designated person will be assigned to inspect it periodically.
- A viable means of extinguishing a fire must be readily available.
- Familiarize yourself with the fuel source emergency shutoff.
- Any temporary heating system requiring the use of propane requires special training in propane handling (where legislated) Please contact your H&S Department for further details.
- Open flame heaters shall not be used as temporary heat in an occupied building.
- When there are conditions that may cause an atmospheric hazard, consult the H&S Department.

#### **Tiger Torch**

##### **Standard**

All CF employees involved in the use of a tiger torch shall comply with the following safe work practice, to ensure the job is conducted in the safest manner possible.

#### **Practice**

1. Ensure that you are acquainted with the safe operation of the equipment
2. Read the Owner's Manual with special attention to the safe work practice Do's and Don'ts
3. Utilize CF's safe work procedure to compare against your FLRA card identified hazards
4. Inspect torch, and affixed fuel source bottle
5. Conduct a leak test as follows:
  - a. Step 1: Close torch adjusting valve
  - b. Step2: Slowly open the supply tank shut off valve
  - c. Step 3: Test all connections for possible gas leaks using a leak test solution, e.g.; (SNOOP)
  - d. If a leak is found at the torch, adjust valve tighten the stem packing nut clockwise. Slowly open the supply tank shut off valve and check for the leak again (repeat if necessary)
  - e. If a leak is found at the supply tank shut off valve close the shut off valve and retighten counterclockwise, Slowly open the valve and check for leaks (Repeat if necessary)
  - f. Make sure the gas supply line is long enough that there is no chance of misdirection of open flame to the gas supply tank (gas line should be 20" or more in length)
  - g. With both the supply valve and the torch adjustment valve in the off position clean the torch manifold out using a wire brush to ensure all debris has been removed
6. Hook up a suitable propane fuel supply
  - a. Ensure that the fuel supply tanks are the equivalent of a 20 lb certified tank



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- b. Place the supply tank in an area with no risk of open flame or spark
- c. The tank should never exceed 49 degrees Celsius. Store in a well ventilated area away from any other flammable materials or heat source
- d. After assembling the gas line connections conduct leak test (See step 5 controls)
- e. Ensure fuel lines have regulators.
- 7. Ignite the torch
  - a. Ensure that the gas supply tank is turned on. Turn the torch adjustment valve  $\frac{1}{4}$  turn and while facing the torch away from the operator ignite immediately using a striker. Always light the torch in a well ventilated area
  - b. Never use a pocket lighter to light the torch. Always use a torch striker as your ignition source
  - c. Utilize flame retardant/resistant clothing if available as well as leather gloves
  - d. Light the torch away from any flammable materials, e.g ; oily rags, wood, etc
  - e. Always have a fully charged ABC fire extinguisher readily available.
- 8. Turn off the torch and put it away
  - a. Always give the torch end assembly time to cool off before storing indoors or near flammable material
  - b. Close the tank supply valve. Slowly open the torch valve assembly until all residual gas within the line has had time to escape
  - c. Fuel tanks should never be stored indoors and should be stored outdoors in compliance with legislative standards for the "Safe Storage of Liquefied Petroleum Gases"
  - d. Disassemble the torch and gas line away from the supply tank and place the plastic protective caps back onto the end of the hose assembly as well as the propane tank.
  - e. Never store the torch in an enclosed toolbox or cabinet attached to the propane bottle.  
Torches are not to be used for heating of work areas or thawing of lines and equipment, etc., or when no one is present to monitor the usage.

### **Storage and Handling of Propane**

#### **Standard**

Propane shall be stored and handled to eliminate the possibility of damage to cylinders.

#### **Practice**

- Oxygen and fuel cylinders shall be stored separately in well ventilated areas away from excessive heat and physical hazards.
- When moving propane cylinders, the valve protective collar should not be used as a means of attachment to a hoist hook.
- Never use a sling to move cylinders, only a secure container.
- Cylinders must be upright and securely tied to an immovable anchor point.
- Cylinders should be stored in definitely assigned places away from elevators, stairs, or walkways.
- Avoid placing cylinders in an area where stray electricity or accidental arcing could occur.
- Check for and eliminate any gas leaks at cylinder valves, regulators, and connections. Use a soapy water solution to check for leaks.
- Leaking cylinders should be taken outdoors and clearly tagged. Return the cylinder to the supplier when completely empty; it is illegal to ship a leaking cylinder.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- The cylinder valve should be opened slowly. Stand to one side when opening a valve.
- Cylinder valves should be closed at all times except when propane is actually being used.
- Mark empty cylinders "MT" with chalk. Spent cylinders must be moved outside as soon as disconnected.
- Propane is odorless so an additive smelling like "rotten cabbage" is introduced to help detect leaks.
- Propane used in temporary heating requires specific training in propane handling (where legislated) Please contact your health & safety department for further details.
- Proper personal protective equipment must be worn. This includes the appropriate eye protection, hand protection (impermeable) and a respirator where exposure is expected to surpass legislated limits.

#### **Welding (Electric Arc Process Equipment)**

##### **Standard**

All workers involved in the use of electric arc process equipment shall be familiar with its characteristics and necessary safety precautions.

##### **Practice**

- All equipment used in the process must be CSA / OSHA approved.
- For safety and convenience, electrical supply lines to welding machines should be controlled from individual cut-off switches.
- Keep equipment and accessories safe from damage and in perfect running order.
- Set up welding operations in a dry location, free from puddles of water or wet ground.
- Cables should not have repairs made any closer than 3 m (10') from the electrode holder.
- Cables should be placed so tripping hazards are not created.
- Loose connections at the machine, in the electrode holder or at the ground clamp will cause loss of power, make for poor welds, and might even cause arcing sufficient to set off a fire.
- Electrodes shall be removed from the holder and disposed of immediately in a receptacle when the equipment is left unattended
- Holder must never be left lying overtop of compressed gas bottles.
- The power supply to welding machines shall be shut off when work is stopped or when equipment must be moved.
- Overloading welding machines or forcing cables to carry currents beyond the rated capacity causes overheating and reduces service life.
- Daily checks of equipment for loose or corroded connections, cable damage, dirty or defective jaws of electrode holders and ground clamps shall be conducted by the welder.
- Shades #12 and #14 have suitable optical density, transmit less light, and less infra- red, ultra-violet and violet rays; so, should be used in MIG or TIG welding.
- Ultra-violet rays can cause skin burning, tanning and "arc eyes." Skin exposed for only 10 seconds will develop a "burn." Dermatitis is not unusual when skin is repeatedly exposed to ultra-violet rays.
- Check MSDS of electrodes or material you are welding on for proper type of respiratory equipment.
- Wear cuff-less trousers to eliminate the danger of spatter and sparks being trapped.
- CSA/ANSI approved safety glasses are recommended to be worn even under helmets and face shields.
- To protect others in the area, proper shielding screens are required for the welding operations.
- Dark woolen clothing or leather is recommended.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Keep work areas uncluttered and organized.
- The supervisor shall (in order of preference):
  - o Eliminate the accumulation of fumes;
  - o Provide adequate ventilation;
  - o Provide adequate respirators.
- Other than routine adjustment, leave repairs of electrical equipment to experienced electricians.
- Gasoline driven equipment must be operated only where the engine fumes can be vented outdoors. Carbon monoxide exposure can be fatal.
- Never switch the polarity with an electric welder in operation. Idle the machine or switch it off for the change.
- Make sure electrical equipment is grounded and connected to the proper receptacle.
- Be sure the branch circuit, main disconnect switch or primary input circuit fuses are removed before attempting any inspection or work on the inside of a welding machine.
- Placing the ON-OFF POWER switch on the welding machine in the OFF position does not remove voltage from the power terminals inside the machine.

#### **Electric Arc Process - Restrictions**

##### **Standard**

Electric arc process equipment will not be used where people may be endangered.

##### **Practice**

- No welding shall be done in any areas where there may be flammable materials, explosive gases, or vapors without authorization from supervisor.
- No welding is to be done in any tank, pipeline, compartment, or container, which has contained flammable material until it, has been purged, cleaned, and proven to be free of explosive vapors.
- Do not allow welding current to pass through:
  - o Crane cables or slings
  - o Oxygen, acetylene, or other compressed gas cylinders
  - o Tanks or storage containers used for flammable liquids
  - o Pipes carrying compressed air, steam, gases or flammable liquids
  - o Conduits, chains, metal handrails or ladders
- Only qualified welders shall weld scaffold bracket clips, ear plates, erection nuts, and lifting lugs at the direction of a professional engineer.

#### **Electric Arc Process - Precautions Practice**

Welders shall observe the following safety precautions:

- Have a solid footing and remember that peripheral vision is diminished by welding shield.
- Store electrode holders where they cannot contact people, fuels, or compressed gas cylinders.
- Remove all electrodes from holders and disconnect the machine from power source when welding is stopped for any period of time such as breaks, etc.
- Burn electrodes to no less than 38mm to 50 mm (1½" to 2") in length. Burning them shorter damages the electrode holder.
- Keep electrodes and holder dry. If exposed to water or steam, dry thoroughly prior to use.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Place electrode stubs in a noncombustible container to prevent slips and falls.
- Utilize air currents to direct fumes away from you.
- Shield yourself and passersby from stray radiation and flashes.
- Guard or mark with chalk "Hot" any completed work.
- Chip slag so that debris flies away from your body.
- Wear gloves when changing electrodes.
- Wear the appropriate PPE; consult the Safety Department for assistance.
- Do not weld near or on degreasing operations or paints because of the formation of hazardous gases.

#### **Electric Arc Process - PPE Standard**

Workers involved in the use of electric arc process equipment shall use proper protective equipment needed for eye and face protection.

##### **Practice**

- The arc welding lens assembly consists of 3 parts:
  - o Outside: clear plastic or tempered glass
  - o Centre: shade lens – filter
  - o Inside: clear lens MUST be plastic
- Use gaskets provided with helmets or goggles.
- Wear arc welding helmets for all arc welding or cutting operations.
- Do not use gas welding goggles for arc welding.
- Wear side-shielded safety glasses at all times, even under welding helmets.
- The supervisor may replace side-shielded safety glasses with equivalent protection.
- Replace pitted or cracked lenses.
- Replace loose or damaged helmets; invisible and dangerous light rays (ultraviolet) can enter undetected.
- Contact lens users should prevent dust from entering eyes. Severe discomfort or eye damage results from particles lodging behind contact lenses.
- Refer to the respiratory protection guidelines for proper selection of respiratory protection.
- Ensure sturdy, opaque, or translucent (not clear) screens are erected to protect passersby.
- Screens should have a space of at least 50 cm (20") at bottom to permit ventilation. Selection of shade numbers are as follows:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

Welding Operation	Suggested Shade Number
Torch Soldering	2
Torch Brazing	3 or 4
Oxygen Cutting	
under 1" (25 mm)	3 or 4
1"-6" (25 to 150 mm)	4 or 5
over 6" (150 mm)	5 or 6
Gas Welding	
under 38-50 mm (1/8")	4 or 5
3.2 - 12.7 mm (1/8" - 1/2")	5 or 6
over 12.7 mm (1/2")	6 or 8
Shielded Metal - Arc Welding	
2.5 - 4 mm (3/32" - 5/32") electrodes	10
4 - 6.4 mm (5/32" - 1/4") electrodes	12
over 1/4" (6.4 mm) electrodes	14
Gas Tungsten - Arc Welding	
under 50A	10
50-150A	12
150-500A	14
Gas Metal - Arc Welding	
60-160A	11
160-250A	12
250-500A	14
Carbon - Arc Welding	14

#### Defective Tools and Equipment Tagging

##### Practice

Employees are to inspect tools and equipment for any damage prior to each use to minimize the risk of injury while operating machinery, tools and equipment. Employees are to be properly trained to use the tools and equipment safely and have operator's manual available for reference if required. If a tool or piece of equipment is found defective the following must take place:

- Immediately stop using the tool and shut off the equipment.
- If a tool is defective, remove it from service, and tag it clearly "Out of service for repair".
- Report it to your supervisor and return tool/equipment to appropriate tool crib or shop and do not store with safe operating tools and equipment.
- Replace or repair, damaged equipment immediately.
- Do not use defective tools "temporarily" when tagged out of service.
- Most procedures indicate that the only person who can remove the tag is the person who attached it.
- Only when it is determined that the tool or piece equipment is safe, can it be used again.
- Keep a record/log of all repairs.

#### Hand Tools - Wrenches Practice

- With the correct jaw size and grip, a wrench does not slip.
- Face an adjustable wrench forward. Pull with movable jaw towards you. Pushing on a wrench is not recommended due to slippage problems.
- Store wrenches in a tool box, rack, or tool belt.
- Avoid the following unsafe practices:
  - o Using a pipe wrench on nuts or bolts.
  - o Using a wrench on moving machinery
  - o Using pliers instead of a wrench



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- o Using a makeshift wrench
- o Using worn wrenches
- o Inserting a shim in a wrench for better fit
- o Striking a wrench with a hammer to gain more force
- o Increasing leverage by adding sleeve additions
- Use eye protection and protective gloves with wrenches

#### **Hand Tools - Hand Saws Practice**

1. Select a saw of proper shape and size for stock being cut.
2. Choose a saw handle that keeps wrist in a natural position in the horizontal plane.
3. Check the stock being cut for nails, knots, and other features that may damage or buckle the saw.
4. Start the cut carefully to prevent blade from jumping. Pull upward until blade bites.
5. Apply pressure on the down stroke only.
6. Support long stock in vise, clamp or with helper.
7. Keep teeth and blades properly set, sharpened and tightened.
8. Protect saw teeth when not in use.
9. Use eye protection with hand saws.

#### **Hand Tools - Hacksaws Practice**

1. Select correct blade for material being cut.
2. Secure blade with teeth facing forward.
3. Keep blade rigid and frame properly aligned.
4. Use strong steady strokes directed away from you.
5. Use entire length of blade in each cutting stroke.
6. Use light machine oil on the blade to keep it from overheating and breaking.
7. Cut hard materials more slowly than soft materials.
8. Clamp thin flat pieces.
9. Keep two hands on the hacksaw and adopt a solid stance.
10. Use eye protection and protective gloves with hacksaws.

#### **Hand Tools – Non-Sparking Standard**

Where isolation, ventilation, and purging of flammable atmospheres are inadequate to ensure a safe area, non-sparking tools shall be used.

#### **Practice**

- Non-sparking or spark resistant tools are made of light metals such as brass, bronze, stainless steel, aluminum, beryllium, titanium, magnesium, and copper.
- Remember that all metals are capable of producing a spark, but those listed above can only do so in ideal circumstances. The hazard is reduced but not eliminated entirely.
- These hazards remain, even with non-sparking tools:
  - o Ignition by friction or impact
  - o Ignition by chemically generated spark



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

- Non-sparking tools cannot be certified as safe because of the surfaces they may strike, which then produce a spark.
- It is possible to certify an electric motor for work in hazardous locations. These motors are almost 100% unable to ignite an explosive atmosphere.

#### Hand Tools - Striking Tools

##### Practice

- Striking tools may be cold chisels, punches or drift pins.
- Hold the chisel, for shearing and chipping, at an angle allowing the level of the cutting edge to lie flat against the shearing plane.
- Punch and chisel holders are available to prevent accidentally striking the holding hand.
- Discard tools, which are bent, cracked, or chipped.
- Redress burred or mushroomed heads.
- Redress the cutting edge to its original shape. Grind to a slightly convex cutting edge.
- Avoid the following unsafe practices:
  - o Applying too much pressure to the head when grinding a chisel (the heat generated can remove the temper; immerse the chisel in cold water periodically when grinding)
  - o Using cold chisels for cutting or splitting stone or concrete
  - o Using a chisel as a drift pin or punch
  - o Holding a chisel while someone else strikes it (use tongs or holder)
- Wear eye protection when striking a chisel, punch, or drift pin.

#### Hand Tools - Vises Practice

- Attach a vise securely. Place bolts in all the holes in the base of the vise. Use lock washers under the nuts.
- If the jaw of the vise projects slightly beyond the edge of the workbench, long work can be accommodated.
- Keep the work as close as possible to the jaws to reduce vibration.
- Support long work rather than putting extra strain on the vise.
- Clean and oil all moving parts.
- Use jaw liners if the work may be damaged or marred.
- Avoid these unsafe practices:
  - o Cutting into the jaws
  - o Using a handle extension for extra leverage
  - o Using the jaws as an anvil
  - o Hammering to tighten the handle
  - o Welding or brazing a vise
- Use eye protection suitable to the hazard.

#### Hand Tools - Hammers Practice

- Select hammers according to their intended use. Misuse can cause the striking face to chip.
- Strike the surface squarely.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Avoid the following unsafe practices:
  - o Using hammer with a loose or damaged handle
  - o Using a hammer head that is cracked, dented, chipped or mushroomed
  - o Welding, grinding or heat treating a hammer head
  - o Striking with the side or cheek of a hammer
  - o Striking one hammer with another hammer
- Wear eye protection when using a hammer.

#### **Powered Hand Tools – Basic Electrical Safety**

##### **Standard**

All electrical extension or power cords shall be maintained in good condition and grounded effectively.

##### **Practice**

- Workers shall inspect for the following defects. Unsafe electrical tools and equipment shall be taken out of service for repair or replacement.
- All electrical extension or power supply cords must be approved for intended use and location.
- All electrical extension or power supply cords must be provided with grounding conductor Light duty cords are not permitted. Replace with heavy duty power cords.
- Power cords should not be tied in knots, which can cause short circuits.
- Worn or damaged outer jackets shall be removed from service.
- All electrical extension and power supply cords are to be fitted with approved cord end attachment devices that are installed in an approved manner.
- Eliminate "octopus" connections.
- Broken three prong plugs shall be replaced. Check that the third prong is properly grounded.
- Ensure all electrical extension or power supply cords are maintained and protected from physical or mechanical damage; keep power cords out of water and protect them from cutting due to traffic passing over by using conduit or placing planks alongside them.
- At temporary service panels, a tie bar is recommended so that cords will not be damaged when pulled out from a distance.
- With all electrical appliances or tools, disconnect from the power source prior to making adjustments.
- All tools are to be double insulated; the power cord must provide effective grounding.
- Switches should not be bypassed by connecting and disconnecting the power cord.
- Test tools regularly for grounding with a continuity tester.
- Suspend power cords where practical. This eliminates trip hazards etc.
- Do not clean electric tools with flammable or toxic solvents.
- Use a ground fault circuit interrupter (GFCI) outdoor or in wet locations.
- Do not carry tools by the power cord. Damage could result.
- Agents such as heat, water, oil, and chemicals can damage the insulation on cords and tools.
- Do not wear loose clothing, or jewelry while using revolving power tools.
- When a tool or cord is defective, tag the item as such prior to sending it into the tool crib for repair. If repairs are not possible on site, take the item out of service.
- An approved ground fault circuit interrupter (GFCI) is to be used with any portable generator. The GFCI must be plugged in as close to the tool as possible.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

## SAFE WORK PRACTICES

NOTE: A GFCI and a Reset switch are not the same. A ground fault circuit interrupter will shut down power supply when stray current is detected from a faulty cord or tool. A reset switch only detects power surges.

### Powered Hand Tools – Drills

#### Standard

All workers involved in the use of electric drills shall be familiar with their characteristics and the necessary safety precautions.

#### Practice

- Safety glasses are required. When drilling overhead, tight fitting goggles are required.
- Keep drill vents clear to maintain adequate ventilation.
- Use sharp drill bits.
- Keep cords clear of the cutting area.
- Disconnect power supply prior to changing or adjusting bit or attachments.
- Tighten the chuck securely and remove the chuck key before starting drill.
- Some things to avoid:
  - o Bent drill bits
  - o Exceeding manufacturer's capacities
  - o High speed steel (HSS) without cooling or lubricant
  - o Reaching under stock being drilled
  - o Use auxiliary handle for larger work or continuous operation.
- For continuous work in concrete or wood use appropriate respiratory protection.
- The circular or rotating motion (torque) in tools such as drills can be transferred to your hands if the bit becomes lodged in the work. Severe strains have resulted from sudden twists.
- The power switch or trigger should be "fail safe" so that it cannot be locked on.
- Use a tool to clean up or debar. Many hand and finger injuries result from the temptation to sweep away cuttings without skin protection.
- Use a vise or clamp to hold small work.
- Inspect tool at least daily before startup. Look for loose or damaged parts, adequate lighting, lubrication, and material that could vibrate into your work area.

### Powered Hand Tools – Circular Saws Standard

All workers involved in the use of circular saws shall be familiar with their characteristics and the necessary safety precautions.

#### Practice

- When using "skill saws" the following eye protection shall be used:
  - o Safety glasses or
  - o Tight fitting goggles
- In confined areas (i.e. indoors), a nuisance dust mask shall be worn.
- Use a sharp blade designed for the work.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Check the retracting lower blade guard frequently to make sure it works freely.
- Allow saw to attain full speed prior to cutting.
- Allow retracting lower blade guard to return to its seat before laying saw down.
- Disconnect power supply prior to making adjustments or changing a blade.
- Keep all cords clear of cutting area.
- For safety, use two hands to control the saw; one on trigger switch and the other on front knob handle.
- Keep motor free of sawdust and chip accumulation.
- Allow the blade to cut at high speed rather than forcing it. The few seconds saved by forcing a cut are not worth the premature wear out of the saw.
- Secure the work being cut to avoid movement.
- Follow all manufacturer guidelines for safe use.
- Some things to avoid:
  - o Fixing or holding open the retracting blade guard
  - o Placing hand below work being cut
  - o Over tightening the blade locking nut
  - o Twisting the saw to change direction or check cut
- Always check work to be cut for nails or foreign objects.
- Do not carry the saw with your finger on the trigger and power connected.
- When ripping stock, use a wedge and guide that is clamped to the work.
- Store the tool in a secure area to prevent damage or theft.
- Do not use a circular saw above shoulder height.

#### **Explosive Actuated Fastening Tools Standard**

Workers involved in the use of explosive actuated fastening tools shall be familiar with their characteristics and the necessary safety precautions.

##### **Practice**

- Operators of explosive actuated fastening tools shall be instructed in their proper and safe use.
- This training shall be given by the manufacturer or his authorized and qualified agent.
- The qualification card shall be carried by the operator at all times the tool is used by the operator.
- The following protective equipment is required by the operator at all times:
  - o Hard hat
  - o Safety glasses and face shield
  - o Hearing protection
- Do not permit bystanders in the immediate vicinity of the work.
- Care and servicing of tools:
  - o CLEAN and maintain in accordance with manufacturer's instructions
  - o CHECK tool prior to each use
  - o REMOVE defective tools from service
  - o STORE tools and cartridges in a locked container
- Use of tools:
  - o Use at 90° to work surface



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

- o Check the chamber to ensure barrel is clean and free of obstruction
- o Do not use in presence of flammable or explosive vapors
- o Do not place hand in front end (muzzle) of a loaded tool
- Use of projectile:
  - o use only studs or nails provided by manufacturer of tool
- o ENSURE that base material can hold the projectile
- o LOAD tool immediately before use
- o don't leave tool unattended
- o if base material hardness is unknown, use a hand hammer to drive the projectile as a test
- Use of charge cartridges:
  - o use cartridges recommended by tool manufacturer]
  - o cartridges are colour-coded for strength
  - o make trial fixing with weakest cartridge
- o HOLD the tool in fixing position at least 15 seconds when too misfires
- o UNLOAD misfired cartridge with extractor tool and deposit into water
- o do not carry unfired cartridges in pockets
- o do not discard unfired cartridges carelessly

#### Powered Hand Tools – Air Powered Standard

Workers involved in the use of air powered hand tools shall be familiar with their characteristics and the necessary safety precautions.

##### Practice

- Air powered tools includes:
  - o Nailing and stapling guns
  - o Grinders
  - o Drills
  - o Jack hammers
  - o Chipping hammers
  - o Riveting hammers
  - o Impact wrenches
- Air hoses:
  - o PREVENT tripping hazards created by hose
  - o Hose connections must fit properly and be secured by wire or chain
  - o Install quick disconnects of a pressure release type rather than disengage type; attach the male connector to the tool, not the hose
  - o CHECK regularly for cuts, bulges, abrasions; replace if defective
  - o TURN OFF air pressure when tool not in use
  - o BLOW OUT airline prior to use
- Air pressure rating of air supply hoses must be at least 1035 kPa (150 psi) or 150% of the maximum pressure produced in the system, whichever is higher.
- Operation:



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

- o Post warning signs and shields if others may be affected by flying chips, dust and noise
- o Support heavy tools to gain safe control of tool
- o Exercise care to protect hands, feet and body in case tool slips
- o Use hearing protection as required
- o Use gloves to assist in reducing hand/arm vibration
- Air cleaning:
  - o Cleaning with compressed air is dangerous
  - o Use pressures below 207 kpa (30 psi) at nozzle
  - o Blowing debris from clothing using compressed air is forbidden

#### Powered Hand Tools – Portable Grinders Standard

Workers involved in the use of portable grinders shall be familiar with their characteristics and the necessary safety precautions.

##### Practice

- Follow the MSDS requirements when handling and using grinding wheels
- An abrasive wheel can break, causing serious injury.
- Clean and service grinders according to manufacturer's recommendations.
- Grinders should not operate when unattended. "Dead man" or constant pressure switches are required, as per manufacturer's requirement. Grinders without trigger locks should be purchased when buying new equipment. Grinders manufactured with trigger locks should have locking devices removed by a competent person
- The following protection is required at all times when using a grinder:
  - o Shielded safety glasses and face shield Or tight fitting goggles
  - o Metatarsal safety boots are advisable
  - o Respiratory protection is advisable
- Wheel speed is related to safety. Excessive speeds cause vibration, rough operation, wheel breakup, and difficulty in controlling the tool.
- Run newly mounted wheels for one minute before grinding.
- Inspect all wheels for cracks and defects prior to mounting.
- Store grinders in a safe area
- Do not grind near flammable materials.
- Do not clamp portable grinders in a vise for grinding handheld work.
- Do not force wheels onto a grinder or change mounting hole sizes.
- Do not remove guards or handle.
- Use appropriate disk size and RPM rating for grinder as per manufacturer guidelines.

#### Powered Hand Tools – Bench and Pedestal Grinders

##### Standard



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

Workers involved in the use of bench and pedestal grinders shall be familiar with their characteristics and the necessary safety precautions.

#### **Practice**

Supervisor shall discuss the following in crew safety meetings:

- Fasten bench and pedestal grinders securely.
- Adjust tool rests to within 3 mm (1/8") of wheels when wheel is not moving.
- Maintain 6 mm (¼ ") wheel exposure with a tongue guard or a movable guard.
- Stand to one side of the grinder until operating speed is reached.
- Bring work into contact with the grinding wheel slowly and smoothly avoid bumping.
- Apply gradual pressure to allow the wheel to warm up slowly and evenly.
- To prevent grooving, move the work back and forth across the wheel.
- Match the abrasive quality of the wheel to the work.
- Dress wheels regularly. Do frequent light dressings rather than heavy dressings.
- Support dressing tool to apply leverage without undue effort. With revolving cutter dressing tools, use the lugs as anchors.
- Replace worn wheels when they cannot be dressed.
- Operating speeds relate to safety.
- Visually inspect wheels for possible damage prior to mounting.
- Always wear eye and face protection when grinding.

#### **Note:**

- Only use grinding wheels as per the manufacturers intended use
- Do not use a wheel that has been dropped

### **Wheel Mounting of Grinders**

#### **Standard**

Workers required to install wheels on portable grinders shall be trained by the supervisor in the correct and safe application of the tool.

#### **Practice**

- Inspect the wheel and conduct a "ring test" prior to installation. "Ring test" means listening for a ringing sound when the wheel is suspended from hole by pin or finger and tapped gently with a non-metallic tool (i.e. screw driver handle).
- "Ring test" does not apply to small wheels i.e. wheels less than 10 cm (4") in diameter.
- Do not use wheels that sound dead or cracked.
- Select wheels according to manufacturer's recommendation.
- All abrasive wheels are fragile.
- o Things to avoid:
  - Dropping a wheel
  - Piling other material on top of a wheel
  - Transporting without protective padding



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

- Storage recommendations:
  - o Store on edge in racks
  - o Keep wheels away from excessive heat
  - o Keep dry
  - o Stack cylinder and straight cup wheels on the flat side on cardboard

#### Lead Acid Batteries – Boosting Standard

Workers involved in the boosting of lead acid batteries shall be familiar with their characteristics and the necessary safety precautions.

##### Practice

- The chemical reaction in lead acid batteries produces hydrogen gas, which is the most explosive gas known.
- To prevent the possibility of a spark when boosting, follow this practice:
  - o Connect booster cable to positive terminal of dead battery
  - o Connect same booster cable to positive terminal of live battery
  - o Connect other booster cable to negative terminal of live battery
  - o Connect last clamp to metallic ground below dead battery
- Do not attempt to boost a frozen battery.
- Always wear safety glasses and a face shield when boosting batteries.

#### Welding and Cutting Fumes

##### Standard

All workers exposed to hazardous fumes resulting from welding and cutting operations shall take the following precautions:

##### Practice

- Welding could be dangerous without the right protective equipment. Metal Fume Fever (alias Z Chills) is a common problem, but has no lasting effects.
- Fumes are tiny particles of metal oxide formed when metal vapors cool and can be seen as smoke. These metal oxide particles are small enough to be inhaled easily and can affect vital organs such as the brain, heart, kidneys, liver, and spleen. Dust presents the same hazard.
- The following chart is a general summary of fumes resulting from welding and cutting operations.

Fume	Source	Potential Health Hazard
Cadmium Oxide	Cadmium coatings	Lung and kidney effects, pulmonary edema (fluid in the lungs)
Chromium	Alloy in stainless steel high alloy steel	CRVI suspected carcinogen



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### SAFE WORK PRACTICES

Copper Fume	Copper alloys and electrodes	Irritant, fume fever
Fluoride	Fluxes on low hydrogen electrodes	Kidney and bone effects (with high exposure)
Iron Oxide	Ferrous alloys and consumables	Respiratory irritant in high concentrations
Lead	Brass, bronze, tern plate galvanized steel	Systemic poisoning
Magnesium Oxide	Aluminum or magnesium alloys	Fume fever
Manganese	Hard facing alloys	Nervous system disorders
Nickel	Stainless steel	Dermatitis, respiratory irritant
Z Oxide	Galvanized coatings	Fume fever

- The gases of concern to welders are carbon monoxide, carbon dioxide, and oxides of nitrogen. Ultra-violet light from the arc forms ozone and phosgene gas. Resulting conditions are irritation of the nose, throat, and lungs. Fresh air supply is needed.
- In tanks, welding operations can displace oxygen with gaseous by-products leading to asphyxiation. Ventilation is called for.
- Using the shortest practical arc length cuts down the amount of fume and ultra-violet light. Keeping the electrode and work as close as possible to 90 degrees reduces fumes considerably.
- A general principle for health protection points to the installation of ventilation and fume extraction equipment. Diluting contaminants to safe levels is the next efficient means of control.
- If the measures in #7 above are not possible, the welder should use a NIOSH approved respirator.
- In the case of oxygen deficient atmospheres or toxic elements inside a tank, large pipeline, or other enclosed space, self-contained breathing equipment will be needed.

#### Internal Combustion Engines – Fumes

##### Standard

When internal combustion engines are located in a sheltered or enclosed area, there is always the possibility of fume and gas exposure in the workplace.

##### Practice

- Fumes caused by internal combustion are:





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- o Carbon monoxide – deadly in high concentrations
- o Carbon dioxide – displaces oxygen in poorly ventilated areas
- o Hydrocarbons – irritants
- Most of the fumes from internal combustion rise and accumulate against the top or ceiling of the enclosure.
- If the odour of internal combustion is noticeable, it should be reported to the supervisor.
- Carbon monoxide poisoning has these symptoms:
  - o Headaches
  - o Tightness across the forehead and temples
  - o Weariness, weakness, dizziness
  - o Nausea
  - o Loss of muscular control
  - o Watering, stinging eyes

If any of these symptoms develop, get fresh air immediately.

#### **Internal Combustion Engines – Ventilation**

##### **Standard**

When internal combustion engines are exhausted into a confined work area, the supervisor shall ensure that air quality is maintained at a healthy level.

##### **Practice**

In order of priority, the supervisor shall take these precautions when internal combustion engine fumes accumulate in the work area:

- Fit a non-flammable flexible hose to the exhaust pipe of the engine taking fumes well away from the work area, preferably outdoors.
- Provide fans to dilute the exhaust fumes.
- Conduct emissions test prior to use in enclosure.
- Emission controls (scrubbers) are required on diesel powered equipment in enclosed areas.

#### **Portable Generator Standard**

All portable generators shall be used so as not to pose an electrical, atmospheric, or explosion hazard.

##### **Practice**

- Inspect portable generators for damage or loose fuel lines that may occur during transportation. Refer to Equipment over 10HP Inspection H&S\_FORM\_55.
- Only run generator in well ventilated area. Be aware of wind direction so that fumes are blown away from work area.
- Use ground fault circuit interrupters (GFCI) when using a generator
- Never hook generators directly to the electrical system of a structure without a transfer switch.
- Before refueling shut the generator down and let it cool.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Never use a generator indoors.

#### **Potential Injuries/incidents**

- Shocks from electrocution
- Carbon monoxide poisoning from generators exhaust
- Fires from fueling

#### **Carbon Monoxide Hazards (CO)**

Generator exhaust can very quickly produce high levels of CO fumes. Humans cannot smell or see CO, so you may be exposed without even realizing it. If you start to feel sick, dizzy, or weak while using a generator, get fresh air immediately - those symptoms are signs that you have inhaled high levels of CO fumes.

The CO from generators can rapidly lead to full incapacitation and even death. If you experience serious symptoms, seek medical attention immediately and inform supervisor that CO poisoning is suspected.

#### **Housekeeping**

##### **Standard**

Work surfaces shall be free of scrap and debris so tripping hazards can be eliminated. Improper storage of materials and cluttered work areas are not safe. To maintain a clean hazard free workplace, management, supervision, and workers must co- operate.

##### **Housekeeping Requirements**

- Daily jobsite clean-up program
- Disposal of rubbish
- Individual clean-up duties for all workers
- Materials piled, stacked, or otherwise stored not to permit tipping and/or collapsing
- Materials stored away from overhead power lines
- Work areas and access/egress routes must be kept tidy, well lit, and ventilated
- Signs posted to warn workers of hazardous areas
- 3 R's
- Coordinating with site owner, constructor/prime contractor for existing waste management programs for disposal of waste or scrap material.

##### **Practice**

- Clear access/egress routes and work areas
- Reusable material to be removed to a safe storage area,
- Adequate illumination, and clean-up of debris
- Keep stairs and landings clear and well lit
- Provide warning signs
- Secure material against the wind. After removing material, re-secure pile
- Gather up and remove debris as often as required to keep work areas and access/egress routes orderly



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Keep equipment and the areas surrounding equipment clear of scrap and waste
- Keep stairways, passageways and gangway free of materials, supplies and obstructions at all times
- Secure loose or light material stored on roof or on open floors to prevent blowing by wind
- Pick-up, store, or dispose of tools, materials or debris which may cause tripping or other hazards
- Before handling used lumber, remove or bend over protruding nails and chip away hardened concrete
- Wear appropriate Personal Protective Equipment for the task
- Do not permit rubbish to fall freely from any level of the project. Lower by means of chute or other approved devices
- All sub-trades are responsible for and are required to ensure that proper housekeeping is maintained in the workplace

#### **Illumination/Task Lighting**

##### **Standard**

Accidents can be attributed to poor lighting. Illumination in work areas shall be adequate for the task at hand.

##### **Practice**

- Poor quality illumination causing direct glare, reflected glare, dark shadows, and eye strain should be a prime concern.
- Accidents are known to result from delayed eye adaptation when coming from bright surroundings into dark areas. Keep doorways and other entries clear of tripping hazards that are momentarily invisible upon entry.
- Smoke, steam and other substances in the air should be ventilated to allow proper visibility.
- Where the possibility of sudden darkness due to power interruption exists, the supervisor shall provide portable lights to permit safe egress from the work area.
- Temporary lights shall be fitted with bulb guards to prevent accidental breakage.
- Florescent light tubes shall be stored in protective sleeves.
- Always turn off lights prior to changing bulbs or tubes. Sudden surge of power while inserting bulbs or tubes can, and have caused explosive results.
- When using string lighting ensure all broken or missing bulbs are replaced to prevent electrical hazards.

#### **Floor Openings and Guarding for Falling Material Standard**

Floor openings shall be identified and guarded. Guard for potential falling material.

##### **Practice**

- Floor holes from 25 mm to 300 mm (1" to 12") through which materials, but not persons may fall shall be securely covered.
- Floor openings larger than 300 mm (12") through which materials and persons may fall, shall be securely covered and marked "DANGER OPEN HOLE".
- Acceptable floor opening covers are:
  - If in roadways, strong enough to support vehicular axles
  - If in aisles where workers walk shall not project more than 2.5 cm (1") above the walking surface
  - Shall not be accidentally displaced
- Stairway and ladder way floor openings shall be protected by a standard railing i.e.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

1.1 m (42") high with a mid-rail and capable of resisting a lateral force of 200 pounds.

- Guardrails consisting of a top rail 1.1 m (42"), mid rail, and toe board are to be provided at the perimeter, open sides and ends of:
  - o Floor including the floor of a mezzanine
  - o The surface of a bridge
  - o A concrete roof while the formwork remains in place
  - o A scaffold platform, work platform, runway, or ramp.

#### **Wall Openings**

##### **Standard**

Wall openings shall be guarded to prevent accidental falls.

##### **Practice**

- Wall openings above or adjacent to dangerous equipment, chemical or acid tanks, degreasing units, and similar hazards shall be guarded with a guardrail using a top rail and mid rail and capable of resisting a lateral force of 200 pounds).
- Open-sided floors, platforms, or edges allowing a fall of 1.4 m (4') shall be closed with standard railings (unless covered by Section 1 above).
- Stair sets having four or more risers shall have standard railings.
- Window wall openings, where the bottom of the opening is less than 900 mm (3') from the floor, require standard guardrails.
- When guarding wall openings, standard railing may be replaced by grill work with openings not more than 200 mm (8"), ONLY if a lateral force of 200 lbs can be resisted.
- Wall openings shall be protected with a standard railing, if they are 1 m (3') high or less, and 450 mm (1.5') or wider.

#### **Roofs Standard**

Roofers and other workers shall be protected from falling.

##### **Practice**

- To warn workers when approaching the perimeter of an unprotected roof edge, a physical barrier of wire, rope, chain, or wood fence can be used. The barrier will be installed 2 meters from the roof edge.
- A person specifically trained and dedicated to alert any person to the roof edge can be used (roof monitor) however a physical barrier as discussed above is also required.
- The warning line shall be flagged at 2-meter intervals with high visibility material.
- The line shall be supported such that its lowest point including sag is not less than 91.4 cm (36") from the roof surface and its highest point is not more than 105 cm (42") from the roof surface.
- If barriers are not practical, a fall arrest system shall be used.
- A travel restraint system can also be used restricting worker access to the perimeter.

During extreme heat/cold conditions refer to Occupational Health section



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

## **SAFE WORK PRACTICES**

### **Working Alone Best Practice**

Best practices for Working Alone includes:

- Management's commitment to the health and safety of their employees
- Assessing the hazards of the workplace.
- Taking corrective actions or measures to prevent or minimize hazards or incidents for occurring.
- Training and educating workers so they can perform their jobs effectively and safely with the measure that have been put into place.
- Investigating an incident that has been reported by worker and following through with measures that will prevent the incident from occurring again.
- Re-evaluating current safety measures on a regular basis to ensure that these measures work, taking into account any changes in your business operations.
- Workers must have a system of communication that can always reach emergency services. This could be a cell phone, 2-way radio (if someone is constantly monitoring the channel), land phone line, etc.

### **Working Alone**

When working alone or when you're the only person on site working in an isolated area out of view from other workers.

- Ensure you have a designated contact—employer, supervisor, or someone else who knows where you are and what you're doing.
- Communicate regularly with your designated contact
- Before beginning work, identify and eliminate, or control all hazards in the work area.
- Inform the site supervisor (or someone who can call for help) that you are on site and will check out with him or her when you leave.
- Make other workers aware of your presence so they can check up on you.
- With your designated contact, have a plan in case of emergency.
- Use the Personal Checklist for Working Alone, H&S\_FORM\_039.

Working alone is prohibited where the work involves:

- High voltage
- Toxic chemicals
- Confined spaces
- Trenches
- Working over/around water
- Use of aerial devices/bucket trucks
- Night time calls (i.e. highway maintenance)

### **Employees Who Travel Alone**

Some of the risk to workers who travel alone involves injuries from motor vehicle incidents. The risk is greater when workers cannot communicate in remote areas or unable summon help.

Equipment and Supplies – Well maintained vehicles prevent exposing employees to unnecessary risk. Appropriate first aid and emergency supplies must be provided.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

## SAFE WORK PRACTICES

Travel Plan – The supervisor will ensure that an appropriate system to communicate with the worker's whereabouts is put in place.

### Winter Driving

Perhaps the deadliest danger of all is "black ice." Black ice is ice which forms on a roadway, usually due to snow melting and re-freezing. Se it is almost invisible, drivers fail to recognize black ice conditions and may drive at normal speeds-often resulting in very serious accidents. Always be alert to the possibility of black ice when temperatures are near or below freezing. Pavement that looks dry but appears darker in color and dull-looking should alert you to the presence of black ice.

Failing to allow enough time to stop is a major cause of winter driving accidents. During slippery conditions stopping distances can triple.

- Driving at a slower speed
- Anticipating stops at traffic lights and intersections,
- Applying brakes sooner than normal will help ensure accident-free stops. When braking, brake carefully with short, rapid application of the brakes. Always allow plenty of extra space between you and other vehicles to minimize the need for quick stops.

Acceleration, turning, and passing also present dangers during winter.

- Accelerate slowly to avoid loss of traction and subsequent loss of control
- Turn slowly, with caution, to avoid sliding into a stationary object or the path of an oncoming vehicle.
- Avoid sudden movements. Pass with care because passing lanes are not maintained as well as driving lanes.
- Leave extra space between yourself and other vehicles so there's room to maneuver in case something goes wrong.
- During a skid, steer cautiously turn in the direction you want the car to go.

Here are some other tips you should remember for driving safely in winter:

- Always use your seatbelt.
- Turn on your headlights during adverse weather conditions. Overcast skies and falling snow limit visibility. It is important to see and be seen.
- Like all the signs say, bridges and overpasses freeze before the roadway. Use extra caution on these.
- Remember that driving in winter weather conditions causes physical and mental fatigue and reduces reaction times. Get plenty of rest and adequate nutrition. Don't drive while you're sleepy or on medication that causes drowsiness.
- Prepare your vehicle well ahead of time. Check fluid levels, tire pressure, lights etc. as per the trip inspection.

Failing to do proper trip inspections can and has led to accidents.

- Avoid using your cell phone while driving. Distractions will reduce your response time.

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HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Practices

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

## SAFE WORK PRACTICES

### 22.59 Concrete Saw Practice

- When ordering parts always includes model and serial number of unit.
- Strictly follow the maximum RPM instructions for the type of blade you are using.
- Safety guard must be in place – never change the size of guard and/or blade without changing the belt drive on the machine – they are matched.
- Do not use in flammable areas (sparks).
- Use only in well-ventilated areas.
- Keep all body parts away from moving parts and/or blade – no loose clothing.
- Wear appropriate PPE (goggles, dust mask, hearing protection, hard hat and safety boots).
- Never leave a running machine unattended.
- Never get in front of the direction of travel of the machine.
- Never operate the machine alone.
- Always check the lifting frame before lifting.
- Check blade shaft RPM and match to type of blade being used.
- Do not use damaged blades.
- Inspect blades twice daily for wear and cracks and/or arbor damage.
- Do not stand in line with the blade (flying debris).
- Never twist or grind with a blade.
- Use a blade shaft locking pin or backup wrench when changing blades. Refer to Operator's Manual Do's and Don'ts

### Cleaning Solvents and Flammable Materials

Cleaning solvents are used in day-to-day construction work to clean tools and equipment. Special care must be taken to protect the worker from hazards, which may be created from the use of these liquids. Wherever possible, solvents should be nonflammable and nontoxic.

The foreman must be aware of all solvents/flammables that are used on the job, and be sure that all workers who use these materials have been instructed in their proper use and any hazard they pose.

The following instructions or rules apply when solvents/flammables are used:

- Use non-flammable solvents for general cleaning.
- When flammable liquids are used, make sure that no hot work is permitted in the area.
- Store flammables and solvents in special storage areas.
- Check toxic hazards of all solvents before use (MSDS).
- Provide adequate ventilation where all solvents and flammables are being used.
- Use goggles or face shields to protect the face and eyes from splashes or sprays.
- Use rubber gloves to protect the hands.
- Wear protective clothing to prevent contamination of worker's clothes.
- When breathing hazards exist, use the appropriate respiratory protection.
- Never leave solvents in open tubs or vats – return them to storage drums or tanks.
- Ensure that proper containers are used for transportation, storage and field use of solvents/flammables.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- When transferring flammable substances between containers make sure the containers are electrically bonded or grounded.
- Where solvents are controlled products, ensure all employees using or in the vicinity of use or storage area are trained and certified in the Workplace Hazardous Materials Information System. Ensure all WHMIS requirements are met.

For further information see the appropriate current Occupational Health and Safety Regulation

#### **Safe Disposal of Paint Cans Used for Daily Work Activities**

- All empty spray paint cans will be placed back into the original box upside down.
- Boxes will be stored at the respective yards. Once an amount has accumulated, an outside agency will dispose of the paint cans safely.
- Do not throw away spray paint cans. These cans will be recycled.

#### **All-Terrain Vehicle (ATV, Gator) Safety Standard**

All CF workers that operate an ATV must be familiar with the manufacture specifications of that ATV and any applicable legislation for the region where it will be used.

Operating an all-terrain vehicle within its limitations is essential. It's also important to be aware of the laws that apply when and where you may operate any ATV. Riding responsibly is important to your safety, your co-workers and the public.

##### **Practice**

- Read your owner's manual and follow all of its instructions and warnings.
- Follow your ATV's warning labels.
- Hard hats, safety glasses and any other construction PPE must be worn while operating the equipment.
- All riders are required to wear a seat belt if the vehicle comes equipped.
- Ensure you are familiar with the vehicle and practice safe riding techniques at all times.
- Inspect the ATV before riding, as advised in the owner's manual (for example, check your tire pressure).
- Operate the ATV at reduced speeds on any project.
- Use proper riding techniques to avoid losing control on hills, rough terrain and in turns. Keep legs and arms inside.
- Avoid paved surfaces whenever possible – pavement may seriously affect handling and control.
- It's preferred that any ATV (Gator) be equipped with roll over protection whenever possible
- If the ATV is designed for two or more riders, be aware of the following:
  - o The ATV will handle differently (cornering, braking, acceleration) compared to riding alone.
  - o Reduce speed and use extra caution.
  - o Ask your passenger to get off and walk if conditions require

##### **NEVER:**

- Operate an ATV that you are not familiar with or comfortable driving.
- Operate or be a passenger on an ATV while under the influence of drugs or alcohol.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Practices**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 36

### **SAFE WORK PRACTICES**

- Drive too fast for your skills or the driving conditions.
- Carry a passenger, unless your ATV was built for two people.
- Overload your ATV beyond its maximum weight capacity.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

## PURPOSE

A safe work procedure includes activities that have been shown in the industry to have potentially serious consequences when performed improperly. CF recognizes that these activities require stringent safe work procedures, and that these activities may be determined through job safety analysis. CF requires all employees be trained in and use safe work procedures to assure safe completion of tasks. In addition, some jurisdictions may require a site-specific safety plan.

## CONFINED SPACE ENTRY

This Procedure has been developed to aid CF employees in identifying and protecting themselves in the event of working in a confined space.

A **confined space** means a fully or partially enclosed space that is not both designed and constructed for continuous human occupancy and in which atmospheric hazards may occur because of its construction, location, contents, or because of the work that is done in it atmospheric hazards may occur.

Examples of Confined Spaces	Common Hazards
Welding the interior of large pipe.	Accumulation of welding fumes
Vessels	Welding process may displace O <sub>2</sub> and create CO
Pits	Possible spills of chemical leaking into pits
Excavations	Leaking bottles O <sub>2</sub> , acetylene, nitrogen product heavier than air leaking in nearby pits
Confined Areas	Co-emitting internal combustion engines operating nearby.
Utility Maintenance Holes	Accumulation of toxic and/or combustible fumes from ducts entering the chamber and water

The Permit System must be obtained separately for each job, location, person, and time. Permits are only good for the shift they were issued for. Confined Space Entry forms must be returned to the supervisor at the end of each shift.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

**Note:** The specific gravity of carbon monoxide (CO) is slightly lighter than air, and as such could be found at any level within a restricted/confined space. Be sure to sample every 3-feet of elevation, in the corners for CO and other contaminants are required.

**Prior to entry into a confined space, a Confined Space Hazard Assessment, Confined Space Plan and Confined Space Entry is required. All these documents are known collectively as the Confined Space Entry Permit System see H&S\_FORM\_041. This permit system is available through the supervisor.**

**The "Permit System" must be accurately completed before entering into the confined space. If you require any assistance please contact the H&S Department.**

### Procedure

- No worker shall enter into a confined space or perform related work until they have been trained on the permit system.
- The permitting system will include hazards associated with work inside the confined space and safe work practices for working in confined spaces and performing related work.
- All training records shall be kept on the project and indicate who provided the training and date provided
- Access and egress from all accessible parts of the confined space is required prior to entry (e.g. a secured ladder).
- If a possibility exists for any unauthorized entry into a confined space, signs or barricades or both will be used to warn against unauthorized entry.
- All electrical and mechanical equipment attached to the process in the confined space must be isolated or disconnected from its power source and locked and tagged out.
- Any moving parts and other equipment that may store energy and have the capability of movement must be de-energized and blocked to prevent movement.
- No testing is permitted on any pipe when men are working inside (e.g. x-ray, die penetrant, etc.).
- All pipes and other supply lines to the confined space must be bled off of any residual energy and blanked off (with blinds sufficiently strong to withstand the line pressure and not susceptible to corrosion by materials inline).
- Prior to entry into a confined space, a competent person will perform adequate tests as often as necessary before and while a worker is in the confined space to ensure acceptable atmospheric levels are maintained.
- All permits are to be returned to the issuer (Supervisor) at the end of each shift.
- A confined space shall be entered when:
  - The Permitting System is complete and all workers have been instructed as to the permitting system requirements
  - All workers entering in to the confined space are trained as to the hazards inside the confined space.
  - The space is purged, continuously ventilated and continuously monitored as the case may be.
  - All measures necessary to maintain a safe atmosphere have been taken.
  - A trained worker is stationed outside the confined space.
  - Suitable arrangements have been made to remove the worker from the confined space should he/she require assistance and a person adequately trained in artificial respiration is conveniently available.
- All work must cease and workers must evacuate when there is or is likely to be:
- Hazardous – gas, vapour, dust, mist or fume; or
- An oxygen content of less than 19.5% or more than 22% at atmospheric pressure



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Whenever the alarm is sounded indicating a warning

**Note:** When a confined space cannot be purged of all atmospheric hazards due to the process or nature of work/equipment or confined space and CF employees may be required to enter the space, the H&S Department shall be notified prior to any entry.

### Responsibilities

#### Program Development and Administration

The confined space program, hazard assessments and entry procedures shall be developed by a qualified person. Qualified person indicates the individual has experience in the recognition, evaluation and control of confined space hazards and can satisfy one of the following requirements:

- Certified Industrial Hygienist (CIH)
- Registered Occupational Hygienist (ROH)
- Certified Safety Professional (CSP)
- Canadian Registered Safety Professional (CRSP)
- Professional Engineer (P.Eng.)
- Experience working with confined space and has a combination of education and training as deemed acceptable by the local jurisdiction

#### Stand By Attendant

1. Is stationed outside and near the confined space entrance
2. Maintains communication with the confined space worker at all times.
3. Is trained in the confined space entry permit system and first aid and cardiopulmonary resuscitation.
4. Is trained in the use of non-entry rescue equipment as per the "Confined Space Permit System" and work activity (consult with the safety department for further clarification).
5. Is provided with an alarm or similar device to summon adequate rescue
6. Ensure a means of emergency signal is available; fire extinguisher, mechanical ventilation; emergency stretcher and SCBA are available if required for rescue as detailed in the plan. Mechanical ventilation or other adequate and consistent ventilation is supplied to the confined space at all times.
7. Ensure that a means of retrieval is available for the confined space worker, in the event of an emergency.
8. Obtain and post at the entrance to the confined space the "Confined Space Entry Permit System" from the supervisor, or have it available for inspection. Return permits to Supervisor at end of shift.
9. If worker reports headaches, dizziness, irritation or other ill-effects then stop work and assist worker in a non-entry rescue (do not go into the confined space)

**Note:** Rescue considerations must be made prior to working in a confined space.

**Note:** At no time will the Stand By Attendant enter into the confined space. The attendant's role is to monitor the safety of workers inside the confined space, provide assistance and summon an adequate rescue response as required.



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Procedures**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# **SAFE WORK PROCEDURES**

### Confined Space Worker

1. Ensure a "Confined Space Permit System" is posted at the entrance to the confined space.
2. You have signed the permit.
3. Ensure to wear and use in accordance with the designed and training all personal protective equipment required while working inside the confined space.
4. Review to ensure that all energy systems are de-energized or lockout out and any process equipment is blocked and blanked and secured against any movement or process material flow.
5. Wear other personal protective clothing and/or equipment required.
6. If compressed gas is required in the confined space:
  - a) The bottles are to be left outside the space
  - b) Prior to entering a leak test is conducted on the equipment (torch and hoses etc),
7. Ensure your equipment/tools are in good working condition prior to entry (e.g. good insulation on welding electrodes and grounding on tools and equipment).

### Supervisor

1. Ensure that the confined space entry system is initiated including the relevant training before allowing employees to enter into a confined space. When in doubt always contact the H&S Department for assistance.
2. Prior to allowing any worker(s) to enter into the confined space, review with all workers all the information in the Confined Space Entry System including the hazard assessment, the plan, the rescue and permit.
3. Consult with the H&S Department for guidance as needed
4. Ensure this procedure is complied with and provide his/her workers with the appropriate training.
5. All workers working in the confined space shall be trained as per the "Confined Space Entry System"
6. React to any emergency
7. Maintain confined space entry permits for 1 year after entry

### **Coordination Document Standard**

A Coordination Document will be completed whenever multiple employers will enter the same confined space either simultaneously and/or consecutively. Employers performing related work around confined spaces must also be involved in this assessment.

### **Purpose**

- To ensure that all employers of workers in a confined space are aware of potential or existing hazards and any other hazards that may be introduced in to the confined space by any of the employers because of the nature of the work they are performing in the confined space.
- To ensure employers communicate with one another
- To ensure employers fulfill their duties/responsibilities to their workers
- To reduce duplication of with respect to plans, entry permits, etc
- To ensure that workers of the various employer's work in compliance with confined space requirements

### **Responsibility**

It is the role of the constructor / prime contractor to identify when the Multiple Employer Coordination Document is required and to ensure that confined space work activities that involve multiple employers is properly assessed to ensure that adequate plans are in



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

place for the protection of workers.

### EWLECTRICAL, MECHANICAL, AND OTHER ENERGY SOURCES – TAG AND LOCK OUT

The purpose of this procedure is to establish the requirements for the isolation of electrical, mechanical and other energy sources. Isolation shall be used to ensure the health and safety of workers where the unexpected start up or release of stored or residual energy could cause injury.

Six steps to effectively Lockout and Tag-out energy sources:

1. Identify all energy sources.
2. Isolate or neutralize all energy sources.
3. Verify zero energy state.
4. Attach lockout devices and tags.
5. Complete work and remove locks.
6. Only power up or re-energize after everyone is clear.

#### Procedure

1. The Electrical Supervisor involved in the electrical work, shall determine where isolation of electrical sources is required. The supervisor involved in the isolation of mechanical energy sources shall determine where isolation of mechanical sources is required.
2. Workers and Supervisors involved with lockout / tag out must be trained in this procedure, and their roles & responsibilities as outlined in this procedure.
3. Notify all other supervision working in the vicinity of the systems requiring electrical or mechanical isolation.
4. The Electrical and/or Mechanical Supervisor shall test and try to engage the equipment to confirm the isolation.
5. The Electrical Supervisor or Mechanical Supervisor shall tag and lock-out the disconnect device. The supervisor will maintain control using a scissor-type device (if required) or a lock box to allow for the multiple installations of locks for other trades.
6. ALL SUPERVISION of trades working on the isolated electrical or mechanical system shall ensure that each of their workers install locks and tags for their protection. If the same work continues into the next shift, the incoming crew shall follow the same procedure after the first crew has removed their locks.

#### LOCK-OUT & TAG-OUT

Lock-out Tag-out is required when equipment or tools and are being serviced or cleaned, the power to the equipment is shut off and the machine is made incapable of moving. All energy sources (electrical, hydraulic, pressure, etc.) are de-energized. The goal is to make sure no one is hurt while working on or near the machine.

Lock-out is meant to ensure that once the equipment is de-energized it stays that way. Lockout helps prevent someone from inadvertently energizing the equipment and causing injury or death.

Tag-out: Lock-out should be accompanied by a tag out. A tag, if required, must be attached to the lock indicating the name of the person working on the equipment and the date.

#### Electrical Isolation

The ELECTRICAL CREW locks shall be the first on and the last off.

#### Mechanical Isolation

The MECHANICAL CREW locks shall be the first on isolation, and last off.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Locks used for isolation shall be individually keyed, numbered and shall not be used for any other purpose.
- The locks and keys shall be stored in a lock box or other suitable arrangement with the Lock-Out Log, H&S\_FORM\_042.
- Access to the locks shall be controlled by the Electrical Supervisor in the workplace.
- Electrical department locks shall not be removed or power restored to a service until all other trade locks are removed and the supervisor who requested the isolation signs off in the log.
- All locks and disconnects must have a "DANGER - DO NOT ENERGIZE OR OPERATE" tag securely attached.

### Delinquent Locks

In the event that a lock is left on, tags are missing or an emergency occurs, and the system must be energized, CF Manager/Superintendent may authorize the removal of the delinquent lock using the following procedure:

- Every effort shall be made to identify and contact the lock owner, including phone calls to the residence, see Delinquent/Abandoned Lock Removal Form H&S\_FORM\_043.
- The **Electrical / Mechanical Authority** shall identify systems or equipment affected by the lock-out and verifies workers will not be affected by re-energizing.
- Disciplinary action taken if warranted.

### Turnovers

During the turnover phase of a project extra care must be taken when isolating electrical equipment as some systems and equipment may be under client and construction control.

- Prior to attempting to isolate any electrical installation or equipment during the turnover phase ownership must be verified.
- Client operations shall sign the log for any isolations completed under CF procedures and controlled by both parties.

### Operating Systems

Systems turned over or under client, control shall be isolated in accordance with the client's procedures. If the client does not have any procedures, further discussions with the client must take place to plan out a safe isolation turnover.

## WORKING OVER/AROUND WATER

Construction over and around water presents dangers. Precautions specifically developed for such construction must be taken before work begins.

### **Procedure**

- Warning signs shall be posted on the project to warn public and workers of the hazards around water (danger deep or icy water, keepout).
- Where there is current in the water, a line extending across the water, with floating objects attached to it that are capable of supporting the heaviest person on site in case he/she falls into the water shall be installed.
- All workers must be alert and aware of their fellow workers at all times.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Workers in proximity to a water hazard who may drown will be protected by a flotation device. This device will provide buoyancy adequate to keep a worker's head above water, face up without effort by the worker (see requirements below).
- All workers wearing a flotation device will visually inspect it to ensure it is free from defects prior to use.
- Before starting work each day a designated worker will make sure that, the rescue equipment is as close to the work area as possible.
- Rescue equipment such as boats must be stored on or near the project ready for use.
- All workers working at this location will be required to attend a safety orientation and safety meeting on the use of life jackets, PPE.
- At least two workers will be appointed and trained for rescue procedure.
- The names posted in the workplace.

### Rescue Equipment

- A ring buoy attached to 15 meters (50 feet) of 9.5-millimeter diameter (5/8" dia) polypropylene rope.
- Life jackets available for each person involved in the rescue.
- A boat (where applicable) equipped with a motor if the water is likely to be rough or swift.
- A boat hook (which is a short shaft with a fitting on one end shaped to help in rescuing a person or recovering an object.)
- An ALARM (horn) system must be maintained to alert workers to the need for an emergency rescue.

### Life Jacket / Personal Flotation Device (PFD) requirements

PFDs or Personal Flotation Devices must be Canadian Coast Guard, Department of Fisheries and Oceans approved or equivalent. The PFD information must state that it is designed to keep the wearer face up in the water.



These are common features that help keep the wearer face up. Styles may vary by manufacturer.

**Note:** These are EXAMPLES of PFD's intended to keep the wearer face up in the water; Actual styles may vary and change. Check with your local jurisdictions and H&S Department for further information.

### Rescue Procedure

1. If a worker falls into the water--- SOUND ALARM---, two workers trained in rescue, immediately put on life jackets and proceed to rescue worker.





**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Procedures**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# **SAFE WORK PROCEDURES**

2. Once the worker has been retrieved to shore, ensure there are no injuries and perform first aid if necessary.
3. If required prepare for medical attention and transportation to the hospital.
4. Stay with the injured worker at all times and keep them calm.
5. Ensure the worker is kept warm until the appropriate medical attention is given.

To eliminate any hazardous conditions and dangers associated with working around water the following safe work procedures are to be implemented.

### **Floating Work Platforms**

When used on a construction project, rafts, scows, barges and similar vessels are considered work platforms. As such, they are subjected to certain requirements.

- Guardrails must be provided along open edges. The guard rails may be removed at the working side of the platform, provided workers are protected by alternate measures of fall protection.
- Workers on the floating platform must wear lifejackets. A life jacket provides enough buoyancy to keep the wearer's head above water, face up, without effort by the wearer.
- Appropriate rescue measures must be prepared.

### **Transporting Workers by Boat**

When navigating any waterway, boats and other floating vessels must comply with the legislative requirements. Consult the H&S Department.

Boats that are not longer than 6 meters (20 ft) must be equipped with at least:

- One approved lifejacket for each person on board
- One paddle or an anchor with at least 15m of cable, rope, or chain
- One bailer or one manual pump
- One class 5bc fire extinguisher if the craft has an inboard engine, fixed fuel tank
- One sound signaling device

All powerboats require navigation lights if operated after sunset or before sunrise. All boats also require radio communication that is compatible to the radio used on site and or barge.

### **Spill Procedure**

To prevent a spill or accident release of hazardous material and contamination of the water all heavy equipment and tools must be fueled on land. When in proper position and secured for work a floating platform must be surrounded by floating absorbent socks attached to the vessel in the event of an accidental release/spill. Additional socks and absorbent pads & waste containment disposal bags must be available on site.

### **Establishing Safe Work Zones - Flagging and Tagging**

#### **Standard**

Yellow or Red ribbon with proper identification tags will be used to create a warning barrier when hazards exist within that work area.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

## Procedure / Practice

- Determining the risk of a particular hazard within a work area will determine the color of ribbon used.
- The supervision/workers performing the work will be responsible for choosing the color of ribbon to be used and the right amount of area needed to adequately safe out the job area.
- Yellow ribbon shall be used to identify to others that hazards exist but are not considered to be of a critical nature but caution still needs to be taken within the ribboned area.
- When an area is to be protected or hazards are identified as serious and could cause severe injuries to those not directly involved in the work, Red ribbon will be used.
- If Red ribbon is being used it shall fully surround the hazardous/protected area so that no one can mistakenly enter the area.
- Where Yellow ribbon is being used it will be placed in such a way to warn people entering from any direction that hazards do exist in that work area.
- All flagging must be tagged on all sides with information of the time and date the ribbon was placed, a contact number and/or person, and the reason for the area being ribboned off.
- All ribboning must be removed and disposed of at the end of the work day or when work is completed.
- In the case that Red ribbon is to be left up for a following shift, supervision of the following shift shall be advised of the hazards within the ribboned area, tagging must also be up dated to reflect these changes.
- Red ribbon shall not be removed by anyone outside of the crew that placed it unless two (2) acting supervisors take the responsibility to ensure it is safe to do so.

NOTE: When anyone is asking or invited to enter into a Red ribboned area and is not directly involved in the job under way they must read and sign onto the FLRA/JSA on the outside of the Red ribboning before entering. That person does not now have the right to come and go but must resign if gone for any period of time that the hazardous conditions may have changed.

Those entering or invited into a red ribboned area will be the responsibility of supervision of that job.

## ASBESTOS

### General Information

Likely locations of asbestos are; Deck/structural fireproofing, pipe covering, AC valve insulation, gasket material, sprayed on fireproofing, floor tile, roofing felts, drywall joint filling compounds, boiler installations, electrical insulator boards whose manufacture and installation predate the early 1980's. The owner of the premises containing asbestos is obligated to inform the Constructor/Prime Contractor as part of the bid process, that asbestos containing materials may be present.

### Standard

At no time will CF employees engage in work activities involving handling or disturbance of friable asbestos containing materials. Workers who are required to remove, disturb, or install asbestos containing materials must be adequately trained in safe work practices, health effects, as well as use, care and limitations of Personal Protective Equipment.

### Procedure

**Note:** Check with local jurisdictions on designated substances, for specific work procedures involving asbestos containing materials.

Managers shall consider the following prior to undertaking work with asbestos:

1. All asbestos related work should be sub-contracted out to reputable asbestos removal company that has been prequalified (see section Subcontractor/Supplier) to perform asbestos handling/abatement activities.
2. All tasks where CF employees may be exposed to airborne asbestos must be assessed and adequate work methods that address



**HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Safe Work Procedures**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# **SAFE WORK PROCEDURES**

removal and cleanup activities will be developed in consultation with CF H&S Department. All employees involved in this work activity, must be trained in the procedures to be followed.

3. These work activities will be designed to ensure workers are not exposed beyond the occupational exposure limit as per the jurisdiction.
4. CF employees required to handle, or that may be exposed to airborne Asbestos fibers must wear Respiratory protection. Protection must be adequate to prevent exposures greater than permissible exposure levels, as specified in legislation applicable to the local jurisdiction where the work will be performed. (See Personal Protective Equipment Section for Guidance)
5. CF employees required to handle or that may be exposed to airborne Asbestos fibers must wear impervious clothing (Tyvek coveralls) which must be removed, prior to leaving the exclusion area. A wash up area must be provided within or in close proximity to the exclusion area and used by all employees leaving the work area.
6. Disposal of asbestos containing material and impervious clothing shall be as follows; Double bag and seal in yellow plastic bags labeled "Caution Asbestos Dust Hazard" and have disposed of in accordance to local jurisdictional requirements Consult CF H&S Department prior to disposal of Asbestos containing waste & materials).

1. Likely locations of asbestos are:

- Deck fireproofing
- Pipe covering
- Ac valve insulation
- Gasket material
- Sprayed on fireproofing
- Vinyl asbestos floortile
- Asbestos roofing felts
- Joint filling compounds
- Asbestos boiler installations

2. The owner of the premises containing asbestos is obligated to inform the Constructor prior to the bid process.

Workers that encounter materials labeled as Asbestos Containing Material (ACM), or Presumed Asbestos Containing Material (PACM) will not disturb the material. If workers suspect material to contain asbestos they are to contact their supervisor.

Workers that are exposed to asbestos beyond the occupational exposure limits may require additional health assessments and surveillance as per the jurisdiction. Consult with the H&S Department for specific programs and obligations.

### **Health Effects of Asbestos**

Chronic high-level exposure (beyond occupational exposure limits) to asbestosfibers increases the potential for an individual to develop specific cancers known to be associated with asbestos. Inhalation of these fibers is the primary cause of asbestos related disease.

Inhaled asbestos is associated with three primary diseases:

1. Asbestosis: Asbestos causes scarring of lung tissue that eventually restricts one's ability to inhale
2. Lung Cancer: Asbestos increases the risk of lung cancer, especially in combination with exposure to tobacco smoke.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

3. Mesothelioma: Asbestos is thought to be the primary cause of this rare and deadly type of cancer of the lung lining and chest wall

### Direct Buried Duct – Suspected of Containing Asbestos Procedure

The following procedure is for removing direct buried or concrete encased fibre duct suspected of containing asbestos.

#### Identification

Underground White Fibre Duct

Manufactured asbestos-cement products (also referred to as “Transit” products) were used from 1935 to 1970. The discovery of these conduits may occur during any conduit break out or demolition work.

#### Material & Equipment

- 9 mm clear plastic bags
- Disposable suits
- 6 mm yellow plastic bags
- Rags
- Pail (5 gal.)
- Mineral oil
- Water
- Water softener
- Half-face respirators
- High efficiency particulate aerosol (H.E.P.A), filters
- Rubber gloves (disposable)
- Disposable rubber boot covers
- Work tent
- Barriers
- Caution tape
- “Hazardous Asbestos Material” warning sign
- H.E.P.A. vacuum cleaner
- Duct tape

#### Asbestos Procedure

1. Establish a work area protection zone.
2. Following normal work methods, remove the overburden to expose the duct or the concrete encased duct structure.
3. Following exposure of the concrete encased duct structure, use a hydraulic hammer to begin removal of concrete from the duct.
4. When duct is visible, determine if it is the fibre duct suspected of containing asbestos.
5. If it is a suspected asbestos fibre duct, set up a work tent around the work area and post “Warning Asbestos Material” signs.
6. In addition to the hard hat, safety boots, and eye protection, put on the following:
  - Disposable suits (coveralls),



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Half-mask respirator equipped with H.E.P.A filters,
  - Disposable rubber boot covers,
  - Disposable rubber gloves,
  - Seal the cuffs (pants & sleeves) of the suits with ducttape.
7. If the duct structure is contained in concrete, use high-voltage gloves instead of disposable rubber gloves. Using the hydraulic hammer, continue to remove concrete from the fiber duct.
  8. Following removal of the concrete encasing the fibre duct, remove high voltage rubber gloves, dispose of leather covers as waste, and clean the rubber gloves. Put on disposable rubber gloves. Moisten the fibre duct by swabbing the surface with a rag saturated with mineral oil. Used rags must be treated as asbestoswaste.
  9. Using a small hammer carefully break the fiber duct. Place the broken duct into a clear 9 mm plastic bags and seal with duct tape. Place clear plastic bags in 6 mm yellow plastic bags and seal with ducttape.
  10. Using H.E.P.A. vacuum, clean the sidewalk or roadwaycovered by the work tent Vacuum the work area inside trench, around the duct.
  11. Remove material from vacuum and dispose as asbestos waste.
  12. After removing and bagging the fiber duct, and cleaning the work area, wash all hand tools with water to which a small amount of water softener was added. Rags generated must be considered asbestoswaste.
  13. Remove disposal rubber boot covers, disposable suits, and disposable gloves. Place in plastic bags containing asbestoswaste.
  14. Remove respirator. Detach filter and discard as asbestos waste. Rinse respirator in water containing water softener.
  15. Pass any contaminated wastewater generated during removal through an H.E.P.A. filter prior to disposal. Contaminated water is to be disposed of at the asbestos waste dump.
  16. Transport the 6 mm yellow bags of waste to a designated asbestos wastedumpsite. Ensure the load is secured and covered with tarp during transport.
  17. Using normal work methods restore the duct bank.

**Note: DO NOT USE compressed air tools during any of this work.**

### 23.12 Winter Preparedness

#### **Standard**

CF is aware of and committed to controlling all workplace hazards that are associated with winter weather. Management will consider winter weather related hazards through the planning of the work and all other work activities and implement controls to maintain workplace safety.

#### **Raise Awareness**

Prior to the winter months workplaces that may be affected by winter weather should consider raising awareness of potential hazards and prepare for work activities using the following best practices:

- Raise overall awareness of the potential hazards of winter season workand conditions.
- Provide comprehensive guidance on Winter Work awareness, preparedness and implementation for management and supervisory personnel working within CF work areas, and for partner and contractor management personnel conducting activities under CF stewardship.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Create a selection of processes, practices, tools and equipment specifications that have previously been successful in supporting winter workplace safety and health.
- Provide recommendations for the timing of pre-winter activities to allow workplaces to prepare in advance for winter work.
- Promote a pre-season readiness process and a post-season review process to establish the priorities for “this year’s” Winter Work program.
- Implement winter-weather campaigns to address ongoing hazards and seasonal changes such as:
  - Cold Stress Awareness
  - Adapting your workplace
  - Awareness and use of approved walkways
  - Proper PPE

### Responsibilities

Project management will have overall responsibility and accountability to prepare and plan for winter conditions.

### Planning the Work

Working in winter weather creates unique hazards in each workplace and management will be responsible to take proactive steps to plan the work safely including, but not limited to:

- Ensure execution schedules are developed in a manner considering winter conditions and associated hazards
- Consider winter constructability issues in terms of equipment reliability and reduced productivity of personnel
- Be aware of work effectiveness between sheltered and non-sheltered work areas
- Perform as much exterior work activity as possible during non-winter months
- Assess subcontractor’s readiness for winter operations in accordance with site expectations and plans
- Prepare a site plan that will identify walkways, sand/salt locations
- Prepare a snow removal plan that includes managing any ongoing freeze / thaw cycles and the buildup of ice
- Coordinate all winter work plans with any site or client plans that may currently be in place

### Roadways/Walkways

As the main focal points for snow removal activities, snow maintenance on roadways and walkways is best managed when appropriate planning has been put into place to

refine transit way layout and construction. Poor transit way planning can result in work inefficiencies without a snow-load, and work effectiveness can be impacted even more when snow removal activities on poorly planned roads/walks interfere with productivity.

In preparation for winter work, planners should take the following points into consideration: Design of roadway/walkway routings

(transit ways):

- Review work breakdown structure and identify work schedule (determining timing of onsite materials).
- Define size of working and lay down areas to accommodate tasks, considering snow management/clearance needs for winter work (adequate space between ‘piles’/modules to permit snow clearing equipment to pass through area).
- Determine vehicular and pedestrian traffic needs.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Develop traffic flow patterns among work areas and identify main traffic routes (primary and limited alternative routes allowing for both operational work and worker transit needs such as lunch rooms, sanitary facilities, warm up locations).
- Consider physical segregation of walkways and vehicle routes (along parallel transit ways).
- Consider location, structure and building materials of personnel walkways, constructing walkways of level areas, free of water, use of gratings, expended metal walkways, raised walkways, etc. Plan walkways on level areas, free of water.
- Determine snow temporary/seasonal storage location and plan snow clearance routes to facilitate snow removal/storage.
- During pre-snowfall activities, observe workforce traffic flow, making route adjustments (or enforce compliance) to established transitways.

### Marking delineation of approved transit ways:

- Mark routing corners with permanent markers, taller than anticipated snowfall (may be illuminated during hours of darkness).
- Observe workforce traffic flow. Use barrier tape or rigid barriers to limit access to alternate routes used by individuals ("shortcuts, goat paths", etc.).
- Evaluate opportunities to run service cabling/hoses parallel to approved transit ways (may be suspended above ground/anticipated snowfall level if appropriate arrangements are made).
- Delineate and mark approved transit ways prior to first snowfall so that the workforce can become used to the transit routes and continue to use them when snow covered.

#### Building steps and entrances:

- Plan for winter operations when constructing steps and entrances (selection of appropriate material such as expanded metal grating, avoiding sheet steel or plywood surfaces)
- Provide handrails for stairways, even if only two or three steps.
- At or near each entrance, provide for storage or non-skid materials for traction assistance during snowy or icy conditions.
- Provide for roof/overhead cover at the top level of the access stairways to keep the area immediately in front of the doors clear of snow accumulation or ice slippery patches.
- Prior to first snowfall, place signage at the bottom of the entrance steps cautioning personnel to remove ice-grip footwear prior to entering the facility (or climbing the stairs, depending upon the construction materials).

#### Snow clearance and transit way maintenance:

- Ensure that the appropriate types of equipment and an adequate number of personnel are assigned to snow clearing, including where necessary, designated workers on the current shift.
- Conduct a pre-snowfall survey of potential obstructions along each route, remove where possible or establish a vertical visual marker where necessary.
- Where a day shift only is operated, establish a contract for pre-shift snow/ice clearance of designated transit ways.
- Where weather conditions require, provide for snow-clearing activities during the shift.
- During heavy snowfall, establish a traffic priority to snow clearance operations.
- For locations employing 24-hour operations, where weather conditions allow, pre-schedule snow clearing activities for designated times during the shift (meal breaks, etc.).



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Consider ceasing work during in-shift snow clearing to avoid traffic conflict with normal work flow and snow clearing activities (traffic conflict will enforce workers to create alternative pathways).
- Keep the route to the snow storage location free of traffic and obstruction to facilitate effective snow removal.
- In periods of heavy snowfall, identify vehicle routes with secondary temporary markers to assist traffic flow and to assist snow clearance crews in identifying the routes.
- Where alternative non-approved transit routes become apparent, as soon as possible establish or re-establish barriers to close that pathway.
- As working and lay down areas have been sized to accommodate snow clearing, during normal operations in snow enforce the restriction that no objects, tools or materials are permitted outside of the designated working or lay down areas.

### Monitoring the Workplace

In support of all winter preparedness activities the established programs, walkways, transit ways and overall site conditions must be continuously monitored. Workplace inspections and audits should include the winter preparedness plans and activities. Due to the nature of winter work and changing site conditions the site must be constantly monitored for:

- Any conditions or obstructions that would result in the workforce taking alternative or unclear pathways to get to their work location or complete their work
- Incorporate winter preparedness plans into work planning activities such as the FLRA or JSA
- Manage non-conformance to winter work plans similar to other H&S infractions up to and including disciplinary action
- Encourage frequent reporting of unsafe conditions and or areas that should be cordoned off

### Lighting

Depending upon the size of the workplace and the relative complexity of the roadway and walkway layout, roadway and task lighting must be appropriately positioned to maximize visibility, minimize 'dark areas' and identify specific hazards to vehicles or personnel.

- Once facility layout design has been completed, establish lighting requirements by considering planned work activities in periods of darkness or reduced visibility.
- Lighting must be assigned to illuminate vehicle critical intersections. This may be accomplished through fixed area lighting or through lighting being assigned to illuminate the specific location.
- Fixed lighting for work areas, particularly around structures or field buildings, is to be planned to reduce shadowing. Areas that are temporarily shadowed may be illuminated through the use of portable self-powered lighting sets/standards/
- Pre-plan the lighting needs prior to hours of extended darkness and arrange for the necessary lighting equipment to be available in advance

### Pedestrian and Traffic Interface

Pedestrian and traffic control measures are important to increase safety awareness of both pedestrians and vehicle/mobile equipment operators. The following controls should be considered:

- Segregation of designated walkways and vehicle roadways.
- Crosswalks to be clearly marked, visible and enforced.
- Pedestrian/worker visibility (high visibility vests at all times when near traffic and personal lights during hours of darkness).
- Speed restrictions (may have to change with seasonal conditions, where snow buildup reduces road clearance limits).
- Safety barriers.
- Restricted parking along roadsides and encroaching on walkways.





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Roadside demarcation markers and marker visibility in winter.
- Flagmen/Route Spotters to work with moving machinery, check for snow-buried equipment and other obstructions.

### Winter Work Personal Protective Equipment

The effectiveness of winter work wear is primarily based upon the balance between efficient thermal protection and the bulk or weight of the protective clothing. The most widely used approach to dressing for work in cold environments is to use multiple layers of clothing

Generally, three layers of clothing are used:

- An inner layer that absorbs moisture and keeps it away from the skin.
- A second insulating layer that helps keep a layer of air trapped around the body.
- An outer layer that keeps dust, dirt, wind and moisture away from the previous layer and that can be easily removed to prevent the buildup of body heat. In wet environments, the outer layer should be waterproof.

### Spring and Freeze/Thaw Cycles

As the winter months near to an end there will be freeze / thaw cycles that will change how hazards need to be addressed.

## FORMWORK AND FALSEWORK

### Definitions

The following definitions are used in the forming industry. Some terms may be used by other trades as well, but their meanings may be different from these depending upon the application.

**Falsework**, in relation to a form or structure, means the structural supports and bracing used to support all or part of the form or structure until the concrete is poured and is strong enough to support loads.

**Flying formwork** is a designed floor formwork system that can be hoisted between levels as a unit.

**Forms** are the moulds into which concrete or another material is poured.

**Formwork** is a system of forms connected together.

**Gangforms** are large panels designed to be hoisted as a unit, and to be erected, stripped, and re-used.

**Knock-down forms** are traditional formwork supported by falsework and shoring, assembled from bulk materials, used once, and then dismantled.

**Panels** are sections of form intended to be connected together.

**Sheathing** is the material directly supported by wales, and against which concrete is to be placed.

**Specialty formwork** is designed specifically for a particular structure or placing technique.

**Struts** are vertical members of shoring that directly resist pressure from wales.

**Wales** are horizontal members of shoring that are placed against sheathing to directly resist pressure from the sheathing.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

## Introduction

In most cases, the formwork required for concrete construction is built by carpenters. Shoring and bracing support the forms that contain the wet concrete. Formwork must also support the temporary weight of material such as bundles of reinforcing steel and live loads of workers and equipment.

There are three stages in formwork operations:

1. Assembly and erection
2. Concrete placement
3. Stripping and dismantling.

To be done safely, each of these jobs requires planning, knowledge, and skill from both supervisors and workers. Design and planning are a supervisory function that may also legally require a professional engineer's involvement. Small construction and renovation jobs, however, sometimes call for typical design work (e.g., specific heights and sizes from the manufacturer), which can be done on site by workers.

Where design drawings are provided, it is important to construct the formwork as designed. Any confusion regarding the design should be approved by the designer.

If site conditions require changes or the design does not seem to suit the situation, changes and approval should also be obtained from the designer. Formwork failures frequently involve deviations from the original design that were done without consulting the designer. They may also involve human error. For these reasons, formwork and shoring must always be inspected before concrete is placed.

All large formwork installations in Ontario must be designed by a professional engineer. But there are always smaller jobs of moderate height or depth—basements, footings, stairs—that may include formwork with typical design arrangements from a form tie manufacturer, which is installed and constructed on the site.

Every carpenter should therefore know the type of formwork needed and how to build, install, and dismantle it safely.

Formwork must always be constructed according to good, safe, and sound carpentry practice. It must have the following:

- Adequate braces and supports
- Reliable bearing surfaces, especially where wood structures are involved
- Adequate ties, bolts, or bracing to prevent movement or bulging.

Because wood is relatively soft, it will crush under heavy loads such as concrete when the bearing surface of joists on stringers, or studs on wales, is not adequate.

Crushing can be avoided by increasing the bearing area between members, using spreader washers, or increasing the number of joists or studs.

## **Spreader Washer on Wooden Wale System**



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

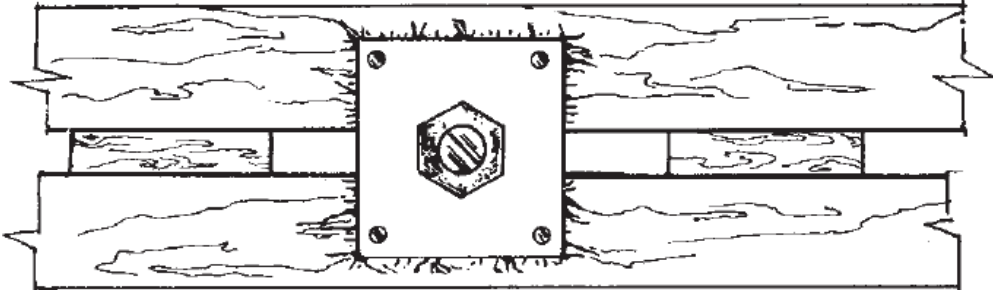
PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES



### Hazards

The following are the main hazard areas in formwork operations.

**Falls** – They are the major hazard because they are potentially fatal. Cramped work areas, inadequate access, failure to install guardrails, failure to use fall arrest systems, tools or material left underfoot, and surfaces slippery from form oil can all lead to falls. Ladders are also frequently involved in falls. All workers in Ontario who may be exposed to a fall hazard and who may use a fall protection system must have working at heights training that has been approved by the Chief Prevention Officer.

**Materials handling** – The activity most frequently connected with injury. Improper or excessive materials handling can result in sprains, strains, and overexertion in shoulders, arms, and back, as well as bruises, abrasions, and crushed fingers.

**Struck against** – Common because formwork operations are constantly changing and involve the movement of heavy, awkward, and pointed components. Wales, beams, panels, snap-ties, nails, bolts, and rebar can cause punctures, cuts, contusions, and abrasions.

**Struck by** – Another common cause of injury. Rebar, formwork panels, concrete buckets, and other material hoisted overhead can strike workers. Struck-by injuries can also be caused by hammers, pry bars, stakes, wedges, and material such as joists and panels during stripping.

**Electrical contact** – Power tools, extension cords, and temporary supply and wiring systems, used under less-than-ideal conditions – mud, ground water, wet excavations, fresh concrete – can lead to ground faults, short-circuits, and shock hazards. Ground fault circuit interrupters are legally required for portable tools used outdoors or in wet locations.

**Collapses** – Even with advanced methods of design and installation, there is always the risk that formwork, slab forms, wall forms, and other large components can come loose, slip out of place, or fall over, striking or crushing workers underneath.

**Health hazards** – The spraying of form oils and curing compounds can irritate the lungs. Contact with these chemicals can irritate the skin, leading to redness, inflammation, or dermatitis. The same conditions can result from the abrasive/ corrosive effect of skin contact with concrete or cement, especially when inadvertently left inside boots all day.

**Environmental conditions** – Ice, snow, and rain create slippery conditions. Wind can be a major hazard. Handling sheets of plywood becomes more difficult, panels may require more bracing, and hoisting gets harder, especially with large panels or tables.

**Dust and concrete** – Blowing dust and flying concrete particles during the chipping or cleaning of formwork can injure unprotected eyes.

**Access equipment** – Access equipment such as ladders and scaffolds are involved not only in falls but in slips, trips, and other accidents. Hazards include ladders not tied off, workers carrying materials while climbing, ladders obstructed at top or bottom, scaffolds not completely decked in, and scaffolds erected or dismantled without fall protection.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

**Lighting** – Inadequate lighting can create or aggravate hazards when workers install or strip forms in dark areas or place concrete at night.

### Injuries

Formwork hazards can lead to the injuries described below. Follow the safety tips to prevent such injuries.

**Eye injuries** – These are quite common in formwork operations. Most result from particles of wood or concrete that fall or are blown into the eye during chipping and cleaning. The injuries may not be severe but most can be prevented by wearing eye protection. It is strongly recommended that everyone on site wear eye protection at all times.

**Cuts, scrapes, punctures** – The manhandling necessary to install and strip formwork can lead to cut hands, arms, and legs, as well as pinched or crushed fingers. Gloves help to prevent injuries from rough or sharp edges on formwork components. But workers must also have the knowledge, skill, and physical ability necessary for safe materials handling. That means knowing your limitations and asking for help when needed.

Formwork involves protruding objects such as nails, snap ties, conduit, and bolts that can give you cuts and punctures. Where possible, these objects should not be left sticking out or should be covered over.

**Back injuries** – These injuries are frequently related to materials handling. The most important preventive measure is back care. Exercise programs, warm-ups before work, and knowing your limitations can help to prevent sprains and strains. Wherever necessary, get help or use dollies, carts, or other mechanical devices.

**Ankle sprains and fractures** – Working in close quarters, stepping over debris and material, climbing into excavations, turning with awkward loads, jumping down from scaffolds or benches—these can lead to ankle and other foot or leg injuries. Prevention starts with proper housekeeping and materials handling.

**Bruises and contusions** – Handling formwork under rushed, cramped, or slippery conditions or beyond a person's physical limitations can lead to bruises. Bruises and contusions also result from contact with protruding formwork components. More serious are contusions from falling formwork materials. Formwork must be braced to ensure stability, especially under windy conditions. Try to avoid areas where work such as hoisting or stripping is being done overhead.

**Fall injuries** – All of the injuries above, and many others, can result from falls. Most falls are caused by missing or inadequate guardrails, failure to use fall-arrest equipment, failure to completely plank scaffolds and other work platforms, and standing or climbing on surfaces not meant to be used as such – the tops of wall forms or 2 x 4 wales, for example. Installing and stripping formwork often requires the use of a fall-arrest system. Falls also result from holes left unguarded or uncovered in formwork. These should be covered up or fitted with guardrails as quickly as possible. Where this cannot be done, the area should be roped off and posted with warning signs to prevent unauthorized entry.

### Planning

Planning is the first and most important step in reducing hazards and preventing injuries. Because formwork operations must often be carried out in congested areas where other trades are also working, planning is essential in making the most of the time and space available to improve safety and efficiency.

Planning is a must for fall protection, work platforms, material staging areas, housekeeping, and material handling and movement.

Planning should take place at every level from manager to supervisor to worker. Planning labour, materials, equipment, and work schedules to meet design requirements is the responsibility of management and supervision. But supervisors and workers should come together to plan the details of their assigned tasks based on the most effective work methods and safety measures.

### Design

Safety and economy are the main factors in design. Both have to be considered because adjustments in one affect the other.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

For example, reducing the support structure for wall forms in expectation of reduced pouring rates should not be considered if the rate of pour is not going to be controlled on the job.

Fresh concrete exerts a pressure on formwork similar to liquids. Concrete starts to set when poured. So if the pour rate is slow, the maximum formwork design pressure can be reduced, since concrete at the bottom will be set before concrete at the top is poured. Similarly, if the forms are filled to the top immediately, they must be able to withstand the pressure of the full liquid head.

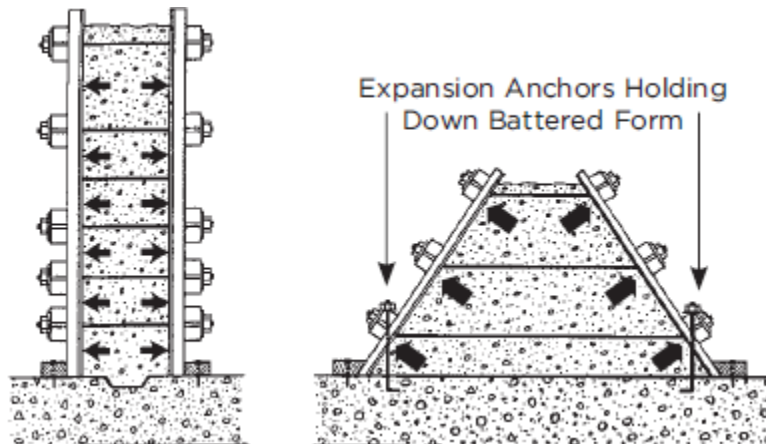
For example, the normal weight of liquid concrete is 150 lb per cubic foot (2,403 kg per cubic metre). So a form designed to withstand 600 lb per square feet (2929 kg per square metre) of pressure will be able to support liquid concrete up to a height of 4 feet (1.2 metres).  $600 \text{ lb/ft}^2 \div 150 \text{ lb/ft}^3 = 4 \text{ ft}$   $2929 \text{ kg/m}^2 \div 2403 \text{ kg/m}^3 = 1.2 \text{ m}$

Other factors determine how long concrete will remain liquid, such as temperature, slump, vibration, and admixtures. For example, concrete will set much more quickly in hot summer weather than in cold winter weather. As a result, the same form filled at the same pour rate may be subjected to greater pressure in winter than in summer.

Concrete pumping may cause additional pressure, as well as vibration, on forms and must be considered at the design stage. The action of the pump sends surges of pressure through the piping system which are often transmitted directly to the forms, especially for narrow walls or columns. Vibration may move the forms or loosen bracing, ties, or spreaders.

Pressure acts perpendicular to formwork surfaces. This causes an outward thrust for typical wall or column forms. However, it can also cause uplift for battered or sloping forms. These require hold-down anchors or tie-down braces. The anchors will prevent the forms from lifting up or floating on the concrete.

### Pressure of Concrete on Vertical and Battered Formwork



Consider using bracing systems and spreaders for wall forms. Concrete filling the bottom of the form may cause forces at the top to push the two sides together unless they are properly braced and/ or separated with spreaders. Formwork has to be designed to resist such forces. During pouring, ensure that spreaders are not removed until concrete has reached at least two-thirds of the form height.

Where box forms are used—for instance, on one-piece covers for open-cut tunnels—you must use bracing against the side thrusts caused by the uneven pouring rates of the walls. Resisting these forces requires that the system be tied together and securely braced.



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

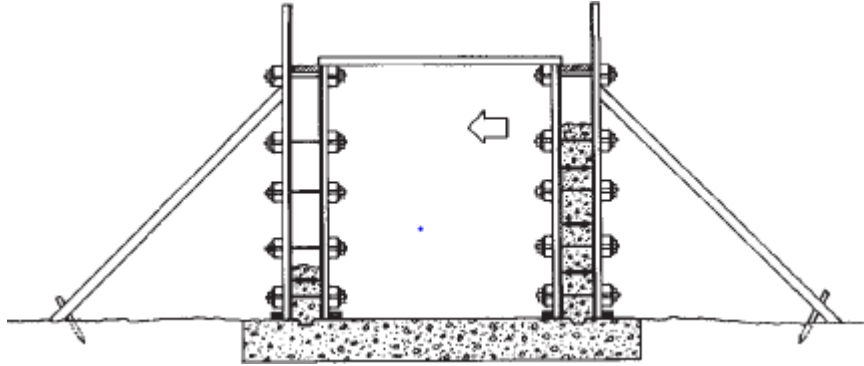
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

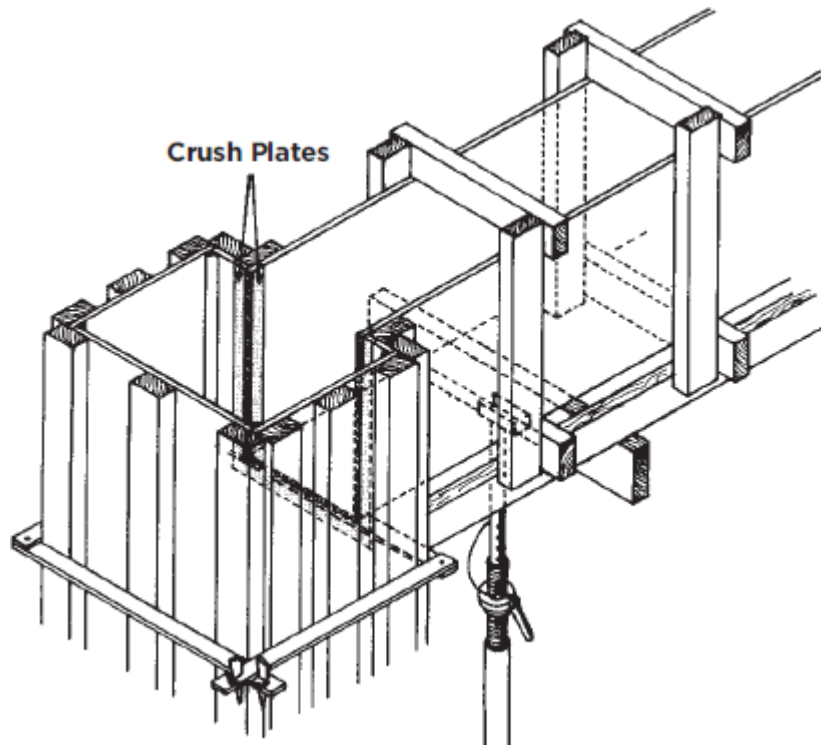
# SAFE WORK PROCEDURES

## Open-Cut Tunnel Formwork with Bracing and Spreaders on Each Side



Formwork should be designed and constructed with stripping and removing as well as pouring in mind. On wooden forms, crush plates or filler strips should be used at corners such as slab-and-column or slab-and-wall intersections. The plates or strips are easily removed with a wrecking bar and, once removed, make the stripping of adjacent panels much easier.

### Crush Plates





HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

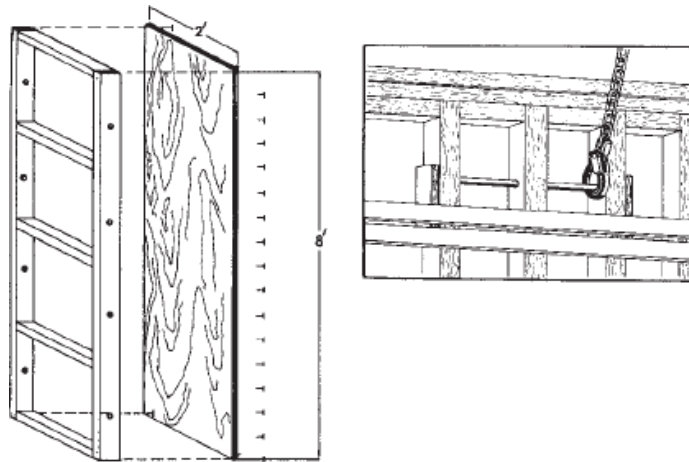
# OF PAGES: 43

# SAFE WORK PROCEDURES

The strips should be big enough to leave space at the edges of the panels to accommodate wrecking bars.

When formwork has to be manhandled during assembly or dismantling, the design should ensure that the components are manageable. Formwork panels are not only heavy but awkward. Realistic design demands consideration of the size as well as the weight of panels.

### Formwork Panel



A formwork panel or wall form to be lifted as a single unit must be designed to withstand the loads and forces exerted by hoisting. In most cases, this means designing a more substantial structure. Fastening components may also need more attention at the design stage. For example, simple nailing may not be enough to hold plywood sheets.



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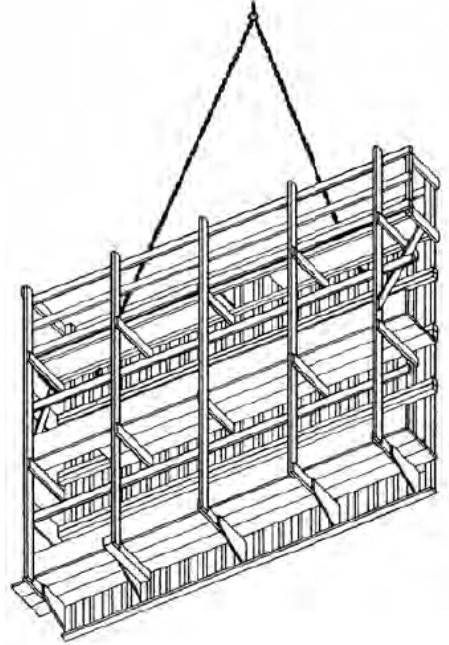
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

Formwork Lifted as Single Unit







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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

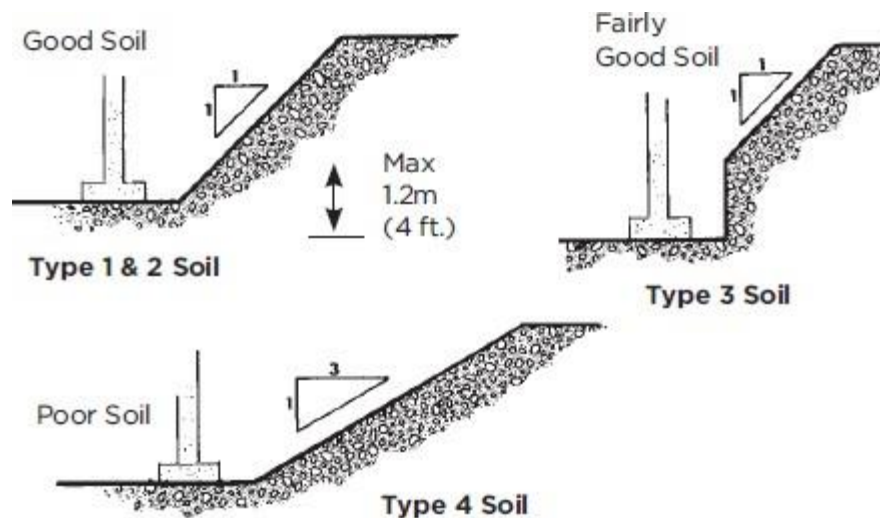
Special attention must also be applied to the design, construction, and use of pick points for hoisting. The strongbacks and wales must be securely attached to the formwork. The pick points must be located so that the panel hangs properly during installation, concrete placement, and removal.

## Types of Formwork

### **Below Grade**

The first concern with formwork below grade is the stability of the excavation walls. Walls must be either shored or sloped according to soil type as defined by section 226 of the Construction Projects regulation (O.Reg. 213/91). Below shows typical slopes.

### **Excavation Slopes for Soil Types**



In most cases the shoring must be designed by an engineer. Engineers may also specify slopes for excavations. In both instances the design drawings must be kept on the project.

Excavations should be kept essentially dry. Water should be pumped out. Mud should be cleared off and replaced by compacted granular material in work areas and on surfaces where concrete will be placed. Mud presents slipping hazards and can lead to inferior construction if not removed or replaced.

Since mud has to be removed before concrete is placed, it might as well be removed before formwork is constructed, thereby reducing slipping hazards at both stages.

Water and mud also contribute to electrical hazards. Grounding and insulation must be effective and intact. Ground fault circuit interrupters (GFCIs) are required by law on all portable tools used outdoors or in wet locations.

Formwork for footings and grade walls frequently begins before excavation in the area is complete. Trucks and excavating equipment put workers on foot at the risk of being struck down or run over.



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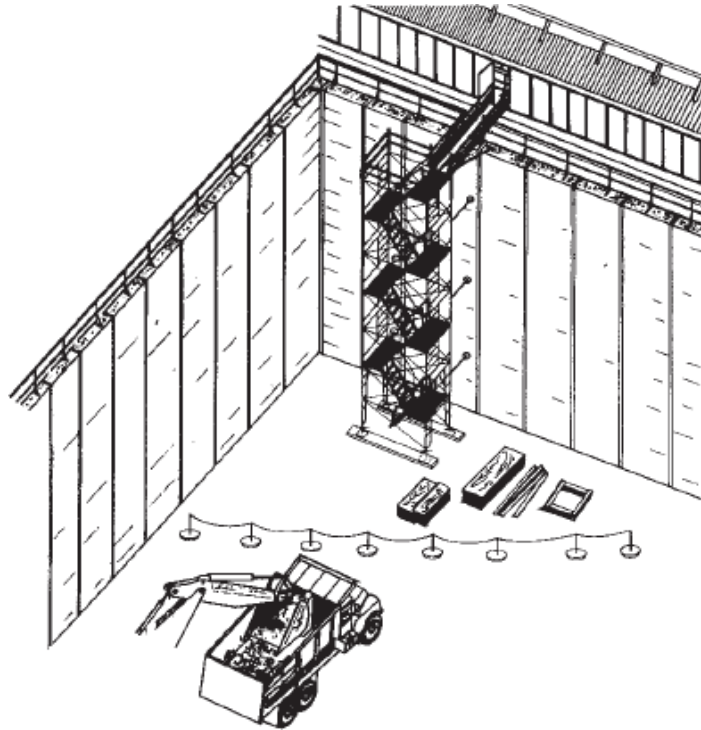
REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

Wherever possible, formwork operations should be roped off from other work such as excavation or pile-driving. Separate access ramps for vehicles and workers are strongly recommended. Stairs are an even better alternative for personnel on foot.

### Formwork Roped-Off from Other Operations



Mud sills must be used to support any shoring or bracing that rests on soil in the excavation. The sill must bear on the soil throughout its length. Sills should not be used to bridge holes or irregular surfaces. To ensure uniform bearing, soil should be levelled before sills are set in position.



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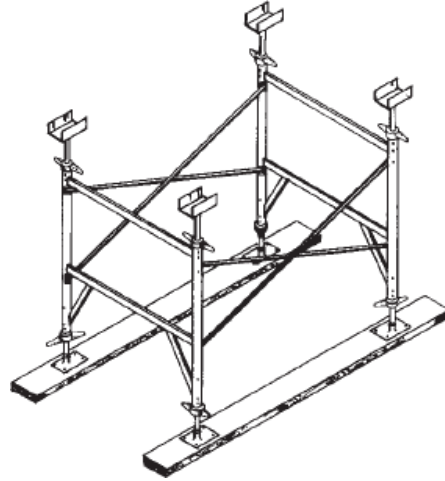
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

## Mud Sills Under Shoring Frames





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## Section: Safe Work Procedures

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

The soil must have the capacity to bear whatever loads are applied (Table 42-1). This information may or may not be on the design drawings.

**Table 42-1: In Situ Bearing  
Pressure for Dry Soil Conditions**

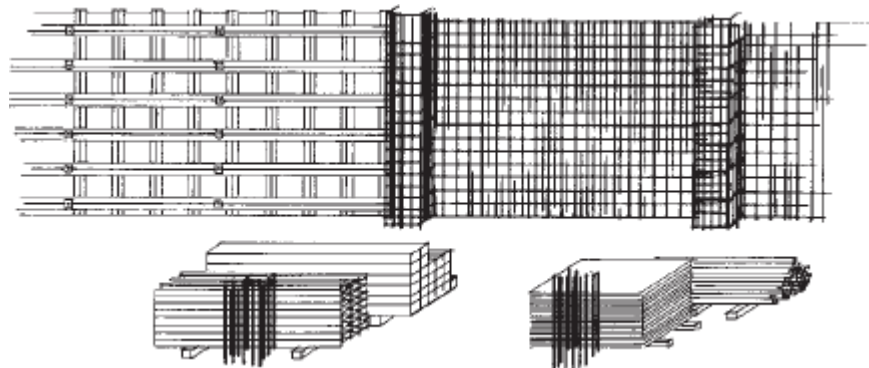
(Conservative Estimates)

Silt and clay	1,200 lb/ft <sup>2</sup> (5,859 kg/m <sup>2</sup> )
Sands	4,000 lb/ft <sup>2</sup> (19,530 kg/m <sup>2</sup> )
Gravelly sands	6,000 lb/ft <sup>2</sup> (29,295 kg/m <sup>2</sup> )
Gravel	8,000 lb/ft <sup>2</sup> (39,059 kg/m <sup>2</sup> )

Soil that supports bracing or shoring should be compacted and qualify as good soil at least (cohesive, hard, with no water). Professional advice from a geotechnical engineer may be required for heavy structures such as elevated equipment supports shored at or below grade.

Formwork in these situations is frequently built in place. Planning is required to store material and equipment out of the way, dispose of scrap and debris, and ensure safe, efficient access. Because conditions are often cramped and scrap accumulates quickly, it is important to clean up as work proceeds.

### Well Planned Storage, Access, and Setup



### Wall Forms

Wall forms built in place are hazardous to construct. Hazards include

- Dowels sticking up from concrete slabs or footings
- Unstable work surfaces and access created by poor planning
- Manual handling of heavy material such as plywood sheets, panels, wales, and buckets of snap-ties, wedges, and plates
- Slippery surfaces at and below grade
- Inadequate design
- Improper construction.



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## Section: Safe Work Procedures

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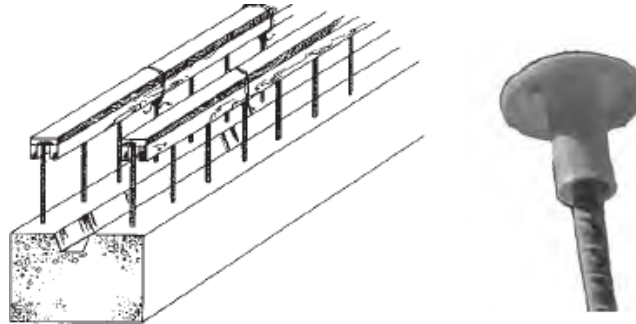
REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

The best protection against dowels is a wood cover built of lumber at least 1 1/2 inches thick and wired in place or protective caps placed over the exposed ends of rebar.

### Protective Covers Over Dowels and Rebar

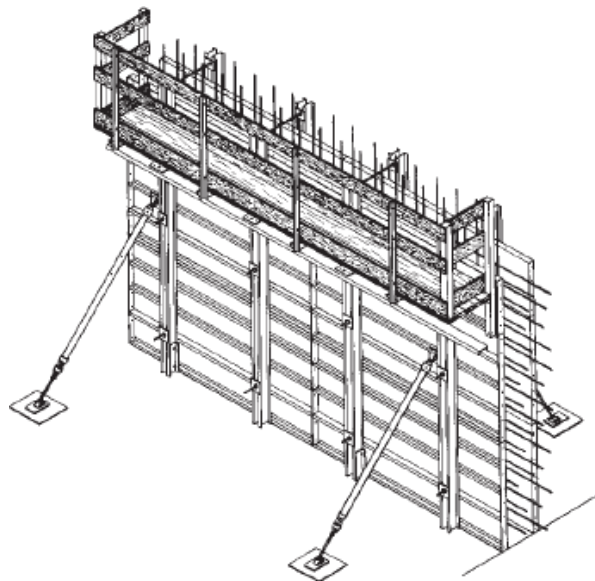


### Starting the Form

Setting up the first form is always hard, heavy, manual work. It requires enough workers to do the job without overexertion or injury. Whenever possible, use mechanical assistance such as a boom, truck, or crane for this operation. It will reduce the risk of injury to workers and increase productivity.

Temporary bracing is needed from the start and at every step to prevent wind loads from toppling the forms—historically the cause of many serious injuries. A wind speed as low as 30 km/h can create a dangerous wind load on formwork.

### Temporary Bracing at Start of Form Construction



Access to wall forms is not always given enough thought. Forms more than 2 metres high will require access platforms for workers



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## **Section: Safe Work Procedures**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# **SAFE WORK PROCEDURES**

involved in concrete placing. The platforms can also be used to complete the upper portion of the formwork. An alternative is a frame scaffold, which can also be used to install reinforcing steel.



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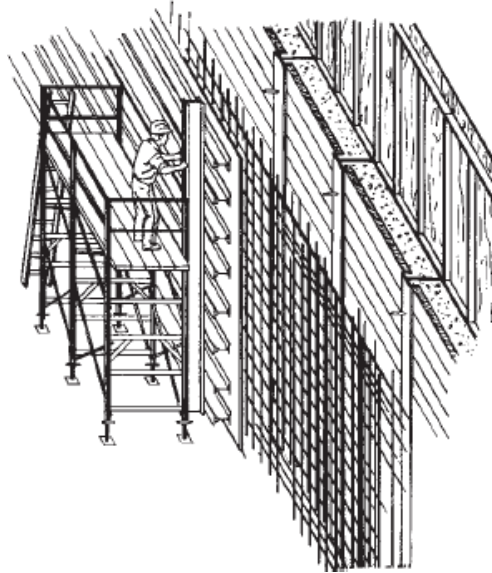
DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

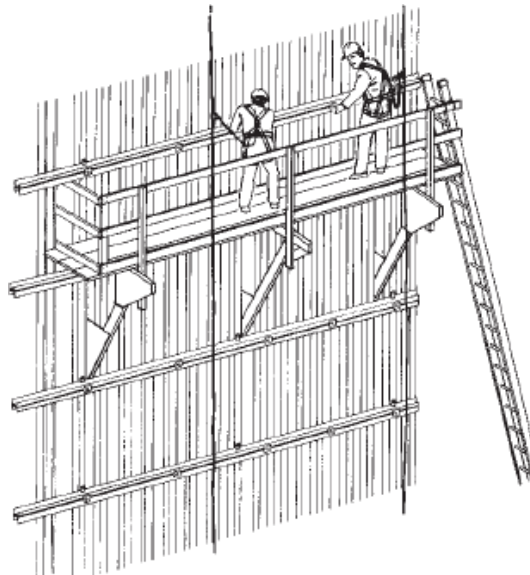
# SAFE WORK PROCEDURES

## Scaffolding for Access



Fall arrest systems or scaffolds with guardrails must be used where workers may fall more than 3 m (10 ft), or onto hazards such as projecting dowels. In some circumstances, you must use fall protection when the height is 2.4 m (8 ft) or more.

## Workers Wear Fall Arrest While Attaching Wals to Threaded Rods





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ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

Materials should be distributed along the work location to minimize further handling. But traffic and work areas must be kept clear for the safe movement and installation of material.

### Form Construction

Wall forms must be constructed as designed. The design must indicate clearly what is required. Some wall forms are designed for specific concrete placement rates expressed in metres of height per hour (m/hr). A wall form in which concrete is placed to a height of one metre in one hour would have a placement rate of 1 m/hr. Slower pouring rates result in lower formwork pressure because the bottom concrete has started to set.

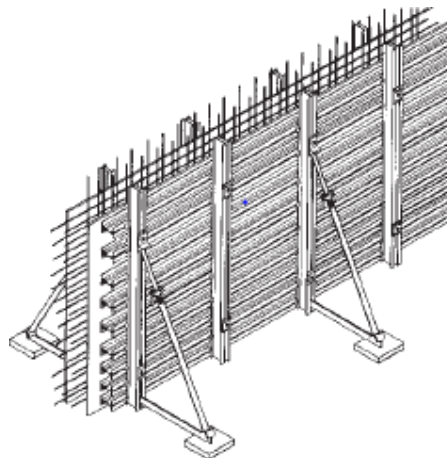
**Note:** Using a concrete vibrator will increase the liquid (hydraulic) pressure on the form in the immediate area of the vibration. Over-vibrating the concrete while increasing the pour rate can cause the formwork to fail.

Ensure that ties and braces are installed where indicated on design drawings. Ties should be snugged up. Braces should be securely fastened to forms and wedged or fastened to a support that will not settle or deform under load.

Formwork platforms must be:

- Capable of bearing at least 50 lb/ft<sup>2</sup>
- Adequately supported
- Equipped with guardrails
- Secured at the level or levels where work such as pouring and stripping will be done.

### Formwork Properly Tied and Braced



Recommended design pressures for various pour rates and environmental conditions are set out in CAN/CSA S269.1-16: *Falsework and Formwork*. The standard defines a number of other design considerations and should be consulted by field staff.

### Slab Forms or Falsework Built in Place

With slab forms built in place the major hazard is falls. Injuries are also connected with the manual handling of heavy materials and components.





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ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

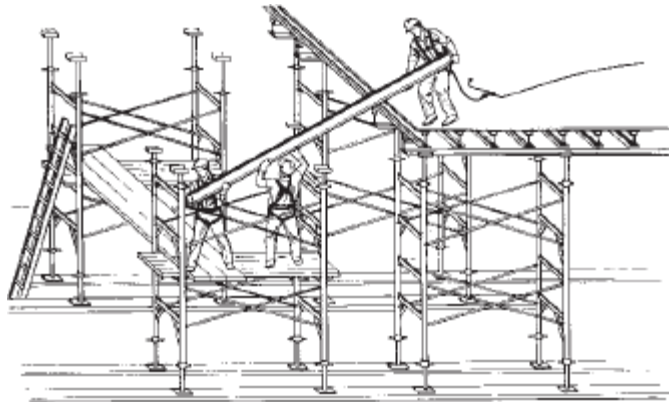
# SAFE WORK PROCEDURES

Forms built in place usually have to be taken down in place after the concrete has hardened sufficiently. This should be considered at the construction stage. Stability may also be a consideration where the structure is high, carries heavy loads, and is placed on grade as in bridge and overpass construction.

Fall protection is difficult to provide for workers building slab forms in place. That's why planning is essential in the design and erection procedure.

Workers should wear a safety harness with the lanyard tied off to the structure of the formwork. This means tying off to the support structure where shoring frame structures are being constructed, tying off to a lifeline when placing plywood panels at a leading edge, constructing a guardrail at the edge of the formwork, or tying off to the support structure when connecting it together with tube and clamp. Don't wait for the structure to be completed before tying-off.

### Workers Tie Off to Shoring Frames While Placing Stringers



Make sure you have fall protection at all stages of formwork construction. Wherever possible, cranes or other equipment should be used to move material, thereby reducing the amount of manual carrying, lifting, and handling.

Shoring towers require special consideration.

- Towers must remain stable during construction and dismantling. Guys or other bracing and supports may be necessary to maintain stability.
- If towers are to be tied together and braced horizontally, this should be done as work progresses.
- Shoring towers and shores should be installed so they are plumb to within 1/8 inch in 3 feet.
- Shoring towers should be snugged up under the stringers with adjustable baseplates and U-heads.
- If frames do not ride tightly on top of one another after tightening, one or more are out of square and should be replaced.
- With single-post shores, provide adequate lateral bracing. Stairwells and balconies are places where horizontal bracing for single-post shoring systems may be required.



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## Section: Safe Work Procedures

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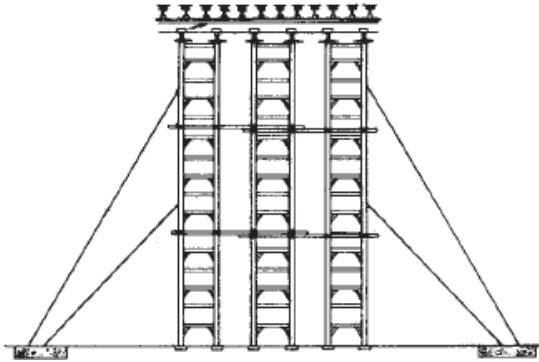
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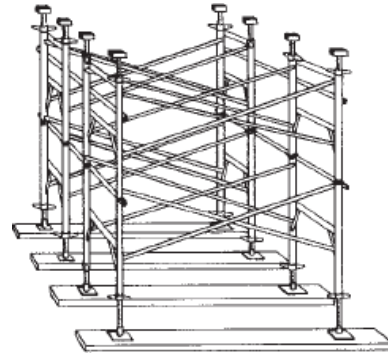
# OF PAGES: 43

### SAFE WORK PROCEDURES

High Towers with Guys for Support  
Horizontally



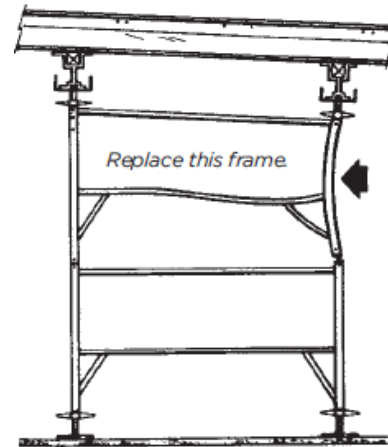
Towers Tied Together and Braced



Typical Shoring Tower with Stringers,  
U-Heads



Frame Bent Out of Shape Adjustable Base Plates, and



ost Shores with Lateral  
Shoring Posts in Centre

Two Rows of Shoring Frames with Row Bracing

of



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ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

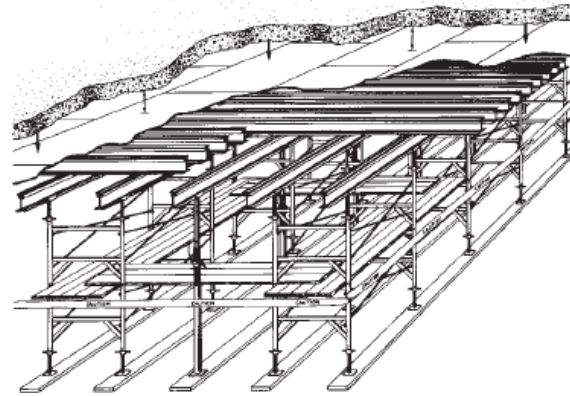
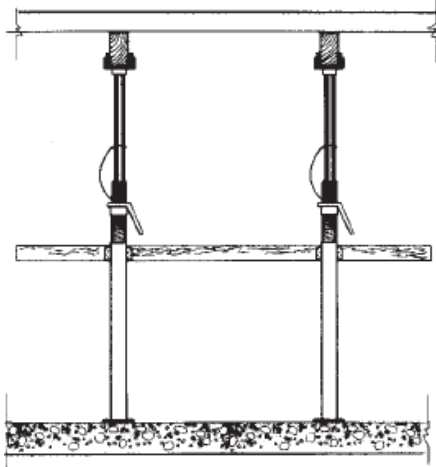
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DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

### SAFE WORK PROCEDURES



Frequently, supports for built-in-place forms are deliberately left out to allow other work to be done. One example might be a row of single-post shores left out until work below is complete. Or, an area might be supported temporarily during construction by a few single-post shores that will be replaced later by a shoring tower.

In these and other instances of incomplete formwork, heavy temporary loads such as bundles of rebar or stacks of plywood should not be placed on the structure. Even on completed formwork, make sure that landed material will not overload the structure. Before placing concrete, the formwork must be inspected and approved by a professional engineer or their designate. Keep a copy of this inspection and approval on the site in case an inspector asks to see it.

#### Flying Forms

Flying forms must always be designed by a professional engineer and constructed, hoisted, moved, and set strictly according to the instructions of the designer or manufacturer.



Using forms designed for typical floors in non-typical situations has resulted in serious accidents. Before using any flying form under



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ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

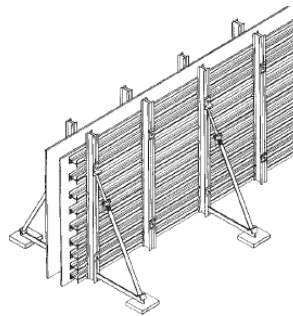
non-typical conditions, consult the designer or manufacturer. Wall forms should not be extended in height or width, for instance, or slab panels cantilevered without the review and approval of a professional engineer. Such situations usually occur with penthouses or mechanical rooms where wall and ceiling heights are greater than for typical floors.

Other hazards with flying forms include the following.

- Stability during initial fabrication
- Fill-in work between slab panels
- Wind and fall hazards during flying operations
- Stripping, flying, and re-setting.

Although a flying form is designed to be stable when complete, it may not be stable during fabrication or erection. Temporary bracing or temporary support by a crane may be necessary to ensure stability during certain phases of the operation.

### Temporary Support of Shoring System for Flying Wall Form



One example is setting up trusses for a flying slab formwork table. The trusses must be held upright to be connected or disconnected. If not adequately supported, they can fall over on workers.

Trusses and wall panels have also been blown over by wind during fabrication and dismantling. Set-up procedures should indicate the maximum wind speed where the flying form operation can be done safely. This wind speed should be determined by the professional engineer who designed the system.

Work with flying forms requires adequate space for stacking materials and components. Working in cramped quarters is not only difficult but hazardous.

### Fall Protection

A fall arrest system should be used by any worker who is at risk of falling when:

- Installing a panel
- Pushing a panel out toward the slab edge
- Pulling a panel in from the slab edge
- Helping other workers attach rigging hardware such as slings
- Getting on and off
- Bolting and unbolting wall forms for exterior walls and elevator shafts
- Stepping onto a panel to attach slings to pick points



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ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

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DATE OF ORIGIN: 02/02/2023

REVISION # 1

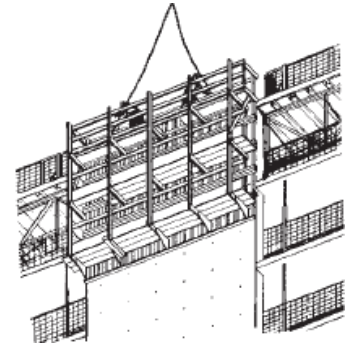
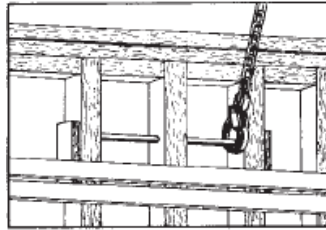
# OF PAGES: 43

# SAFE WORK PROCEDURES

### Fall Protection Required when



### Attaching Chain Sling Receiving a Flying Form to Wall Form





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## Section: Safe Work Procedures

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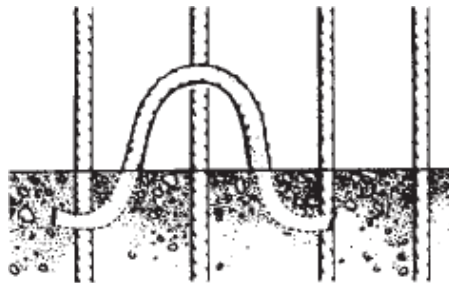
REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

Each worker's fall-arrest system must be attached to an individual anchor independent of the flying form. Contractors can provide for anchorage by casting rebar anchors in columns or other areas to be covered over or filled in later. This type of anchorage must be approved by a professional engineer.

### Rebar Anchor Cast in Concrete



### Safety Below Flying Forms

The previous section covered the safety of workers flying the forms. But precautions must also be taken to protect workers below the hoisting operation and the public at large, since forms are often swung out over sidewalks and streets. The Construction Projects regulation (213/91, s. 103(2)) prohibits hoisting a load over the head of a person who is not receiving the load or sinking a shaft.

The most efficient protection for workers is to fence or rope off the area below the flying form to prevent anyone from entering the area. Pedestrian traffic on sidewalks, as well as vehicle traffic if necessary, should be detoured around the area while hoisting is under way.

### Communication

Flying forms are heavy, large, and awkward to move. Hoisting and moving them safely requires clear reliable communication. While hand signals are often necessary and are still used, direct radio or cell phone communication between the signaller and the crane operator is more accurate and effective. Relying on hand signals alone is not recommended.

### Stripping

Formwork stripping is probably the most hazardous operation in concrete construction. Hazards include the following.

- Falling material
- Waste material and equipment underfoot
- Manual handling of heavy or awkward forms, panels, and other components
  - Prying forms loose from concrete presents risk of overexertion, lost balance, and slips and falls.

Hazards can be reduced by

- Planning and providing for stripping when designing and constructing formwork
- Stripping as soon as it is permitted by the engineer



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ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Supplying facilities and equipment for removing materials as they are stripped
- Providing proper tools and adequate access for the stripping crew
- Training personnel properly for this and other aspects of formwork.

Forms can be designed with crush plates or filler strips to facilitate removal at difficult intersections of columns, beams, and wall forms. Later, formwork oils should be used liberally to make stripping easier.

Wherever possible, waste materials, plywood, and debris should be removed from the area as work proceeds. This will reduce the need to walk over or work around things left on floor or ground.

Providing carts or cradles can help the crew remove material and reduce the need for lifting and carrying. Material on a cart can be rolled away. Material in cradles can be hoisted off by a crane.

Climbing partially stripped formwork is not only hazardous but unnecessary. Safe access such as rolling scaffolds or powered elevating work platforms should be provided for stripping formwork at elevated locations.

Poor lighting may be a hazard in formwork stripping in the early morning or late in the day during certain times of the year. Mobile light stands are probably the best solution, since pigtail stringers can easily be knocked down and damaged during stripping.

Wherever possible, stripping crews should be small. This is especially important with knock-down systems. In small crews, the supervisor and each worker can more easily keep track of what the others are doing. Workers are not as likely to create hazards for each other. Crews of two or three are recommended for knock-down systems. If more workers are required, they can still be divided into small crews working in separate areas. Other trades and operations should not be allowed in areas where stripping is under way. Given the many hazards involved, the area should be fenced or roped off and warning signs posted.

### Knock-Down Slab Systems

Stripping these forms is physically difficult because much of the work is overhead. The usual arrangement involves shoring frames or a combination of shoring frames and jacks.

Wherever possible, the work should proceed progressively from one side. That means taking out one row of formwork supported by a row of stringers on shoring frames.

The first step is to back off the adjustable base plates and U-heads in one area, which will in turn lower the stringers, joists, and plywood.





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## Section: Safe Work Procedures

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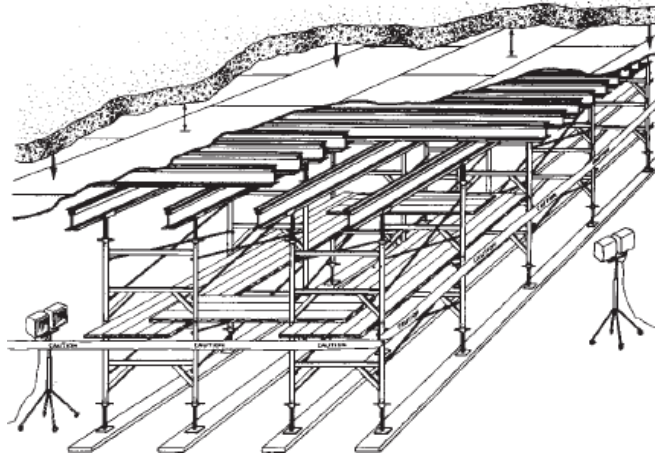
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REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

## Lowering Base Plates and U-Heads to Release Slab Form

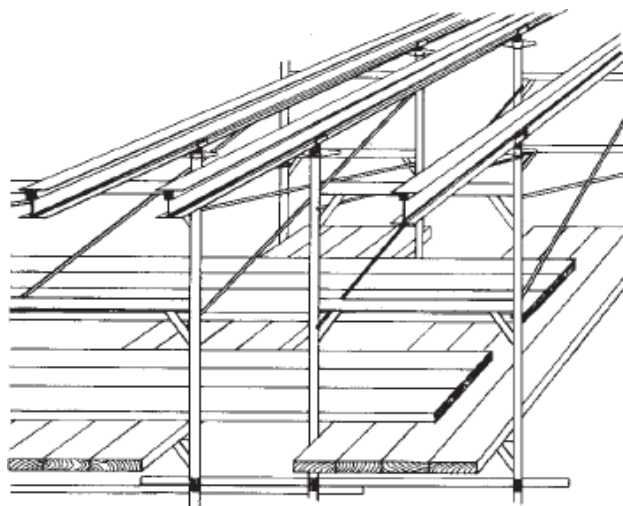


In practice, however, the plywood will stick to the underside of the concrete, especially around beams, column caps, and similar points. Wherever possible, stuck sheets should be loosened and removed before the shoring structure is dismantled.

Stripping should proceed in reverse order to erection. Plywood should be removed first, followed by joists and stringers. The last items to be removed are the shoring frames.

When scaffold or shoring frames are used as a work platform, it should be completely decked in with planks. Otherwise planks can shift and slide as workers pry or pull at stuck pieces of formwork, lose their balance, and fall. This has been a frequent cause of injuries. Temporary guardrails may be required near the edge of the structure or workers will need to use fall protection during this operation.

## Shoring Frame Fully Planked for Access







HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

The area where stripping starts should be planned to allow access for taking away material as the form is dismantled.

Sound training, effective supervision, well-designed safe access facilities, and immediate and continuous cleanup can help reduce hazards in stripping knock-down slab forms.

### Built-in-Place Wall Forms

These forms are frequently of only moderate height. Taller types usually make use of large panels erected and removed by crane rather than hand. Built-in-place wall forms are usually a stud-and-wale system using some type of formwork ties.

Where workers cannot reach the top of the wall, scaffolding should be provided for removing wales on the upper level. Safe access is essential for the dismantling and manhandling of wales that are frequently long, heavy, and waterlogged.

Material should then be removed immediately to a staging area.

### Inspection

Before concrete placing begins, formwork must be inspected and signed off by a professional engineer or a competent person designated by the engineer to ensure that it has been constructed to provide for worker safety and to meet job specifications.

A report must be completed by the person doing the inspection stating whether the formwork has been constructed according to the design. Any discrepancies must be approved by the design engineer before concrete placing proceeds.

It is in everyone's best interest to ensure that the formwork has been inspected by a competent person for workmanship, stability, and adherence to design drawings and specifications. Inspection should begin when the forms are being constructed and continue until concrete placing is complete.

Checking line and grade is best carried out while the formwork is being constructed. Shoring structures should be within the alignment limits specified on the design drawings. Line and grade should also be checked during the pour to determine whether formwork is shifting or deflecting.

Dimensions of special features like beams, column capitals, and inserts are best checked at the time of construction. If inspection is delayed until formwork is completed, some details may be covered up or become more difficult to check.

### Columns

Check the following:

- The proper size and type of materials are used
- Column ties or column clamps are spaced according to design drawings
  - The spacing of ties or clamps is based on a sound assessment of concrete pressure (generally columns are designed for a full liquid head of 150 lb per cubic foot (2,403 kg per cubic metre) times height)
- Columns are adequately braced where they are not tied in to a slab-form structure.

**Note:** For more information on column formwork pressures, refer to CAN/CSA S269.1- 16: *Falsework and Formwork* or the American Concrete Institute (ACI) standard Formwork for Concrete (SP-4).

### Wall Forms

Check the following:

- Materials and any manufactured components are as specified in design drawings (size and spacing of studs, wales, and ties are crucial to safety)
- Ties are snugged up before concrete is placed
- Wedges in wedged systems are tight



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Safe Work Procedures

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 43

# SAFE WORK PROCEDURES

- Nuts in threaded systems are tight
- Bracing conforms to design drawings
- Free-standing formwork is braced to ensure stability and resistance to loads during concrete placing
- Specified pour rates are not exceeded (wall forms are often designed for specific pour rates; exceeding these rates can cause failure or collapse).

### Slab Forms

From a safety perspective, this is the most critical type of formwork. The collapse of slab forms has caused many injuries and deaths, whether from flawed design (e.g., not considering the effect of wind loading on the design), unauthorized modifications in the field, or the failure to inspect, which would have located and corrected deficiencies.

Competent inspection demands knowledge, experience, and the ability to

1. Distinguish between similar but different materials and shoring equipment
2. Read and interpret design drawings
3. Identify and clear up with the designer any apparent or real discrepancies in components such as shoring frames.

Check the following:

- Grade beams or mud sills supporting shoring are properly sized and located.
- Hazardous soil conditions such as excessive moisture, freezing, and uncompacted soil conditions are reported and discussed with the professional engineer.
- Shoring frames and jacks are located and aligned within tolerances specified on the drawings.
- Shoring frames and jacks are out of plumb no more than 1/8 inch every 3 feet.
- Adjustable base plates for shoring frames and jacks are snugged up.
- U-heads are wedged in place.
- Stringers are the specified size and number, with supports properly spaced.
- Aluminum stringers have no bent flanges or other damage.
- Joists are the specified size and properly spaced.
- Support structures and shoring for beam bottoms and column capitals are constructed according to design.
- Lateral bracing is provided where required (for instance, on freestanding formwork for bridges and overpasses).
- The bearing surface for lateral bracing is adequate—that is, stable footings or well- compacted soil.
- Temporary loads such as rebar are not overloading the system.

### Concrete Placing

Forms should continue being observed during concrete placing. Any signs of movement, crushing, cracking, or deflection are cause for alarm. Placing concrete should be suspended until the situation is corrected.

Watch for the following warning signs:

- Lateral displacement or movement of single-post shoring for slab forms
- Movement or deflection of lateral bracing for single-post shores
- Movement of stringers on U-heads
- Crushing of wooden stringers on U-heads (Figure 42-29)
- Gaps or shoring that is not snugged up under stringers
- Deflection of stringers between supports (Figure 42-30)
- Deflection of wales or strongbacks on wall forms



HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

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PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

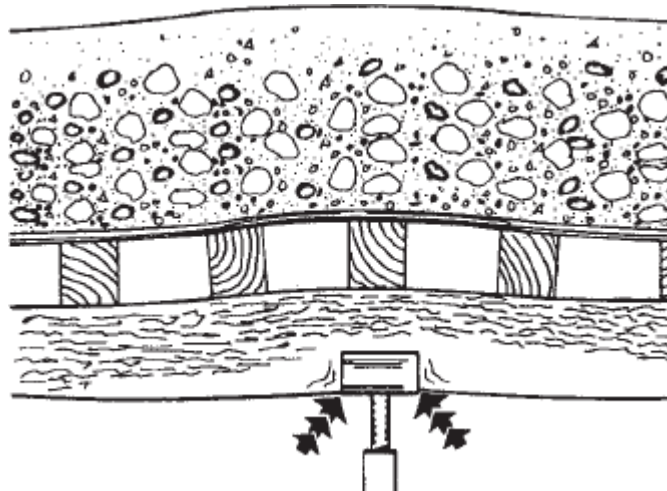
REVISION # 1

# OF PAGES: 43

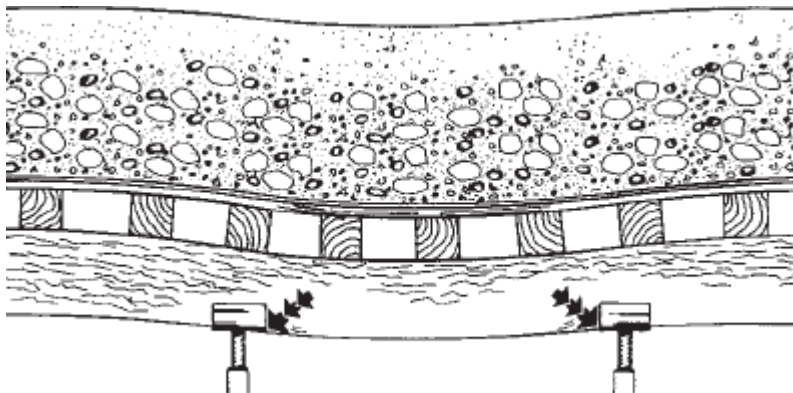
### SAFE WORK PROCEDURES

- Wall forms that are bulging or cracking
- Crushing of wales or strongbacks at washers for ties
- Movement of wall forms
- Uplifting of battered forms
- Pour rates that exceed design specifications.

#### Crushing of Stringer Over U-Head



#### Deflection of Stringers Between Supports






DUTCH BROTHERS

**J-AAR**  
EXCAVATING

**AAROC**  
AGGREGATES



 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

### PURPOSE

This section outlines DBRMX's workplace violence and harassment policy and program. It details the responsibilities of the employer and gives information and instructions to workers who may be exposed to violence and/or harassment.

### DEFINITIONS

#### Workplace Violence

"Workplace Violence" means:

- The exercise of physical force by a person against a worker, in a workplace, that causes or could cause physical injury to the worker,
- An attempt to exercise physical force against a worker, in a workplace, that could cause physical injury to the worker.
- A statement or behavior that it is reasonable for a worker to interpret as a threat to exercise physical force against the worker, in a workplace, that could cause physical injury to the worker.

Examples of workplace violence include:

- verbally threatening to attack a worker;
- leaving threatening notes at or sending threatening e-mails to a workplace;
- shaking a fist in a worker's face;
- hitting or trying to hit a worker;
- wielding a weapon at work;
- throwing an object at a worker;
- sexual violence against a worker;
- kicking an object the worker is standing on such as a ladder or
- trying to run down a worker using a vehicle or equipment.

#### Domestic Violence

A person who has a personal relationship with a worker- such as a spouse or former spouse, current or former intimate partner or a family member- who may physically harm, or attempt or threaten to physically harm, that worker at work. In these situations, domestic violence is considered workplace violence.


#### Workplace Harassment

Workplace harassment means:

- engaging in a course of vexatious comment or conduct against a worker in a workplace that is known or ought reasonably to be known to be unwelcome or;
- workplace sexual harassment

#### Workplace sexual harassment means:

- engaging in a course of vexatious comment or conduct against a worker in a workplace because of sex, sexual orientation, gender identity or gender expression, where the course of comment or conduct is known or ought reasonably to be known to be unwelcome, or;

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

- b) making a sexual solicitation or advance where the person making the solicitation or advance is in a position to confer, grant or deny a benefit or advancement to the worker and the person knows or ought reasonably to know that the solicitation or advance is unwelcome.

### SCOPE

Workplace harassment can involve unwelcome words or actions that are known or should be known to be offensive, embarrassing, humiliating or demeaning to a worker or group of workers. It also includes behavior that intimidates isolates or even discriminates against the targeted individual(s).

This may include:

- making remarks, jokes or innuendos that demean, ridicule, slander, intimidate, or offend;
- displaying or circulating offensive pictures or materials in print or electronic form;
- bullying;
- repeated offensive or intimidating phone calls or emails;
- inappropriate sexual touching, advances, suggestions or requests.

What isn't workplace harassment?

Reasonable action or conduct by an employer, manager or supervisor that is part of their normal work functions would not normally be considered workplace harassment. This is the case even if there are unpleasant consequences for a worker. Examples include:


- changes in work assignments;
- scheduling;
- job assessment and evaluation;
- workplace inspections;
- implementation of dress codes or PPE and
- disciplinary action.

Differences of opinion or minor disagreements between co-workers would also not generally be considered workplace harassment.

In addition, any behavior that would meet the definition of workplace violence would not be considered workplace harassment.

Workplace Risk Assessments

- Management will review and assess the risks of workplace violence that may arise from the nature of the workplace, type of work or conditions of work. Consider the circumstances of DBRMX workplaces and circumstances common to other similar workplaces.
- Develop measures and procedures to control identified risks that are likely to expose a worker to workplace violence and harassment.
- Advise the J.H.S.C. of the risk assessment results.
- Repeat the assessments as often as necessary to ensure the workplace violence/harassment policy and program effectively protects workers.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

Management will involve the Joint Health and Safety Committee in developing written programs and procedures, regarding workplace harassment which addresses:

- the reporting of incidents;
- the investigation process;
- how the investigation information will be kept confidential, except for the purposes of taking corrective action or required by law;
- training under the programs and procedures; and
- an annual review of the programs and procedures.

### PROCEDURES

All workers must consider the following safe work procedures:

#### Plant and Office

- Maintain outside lighting and keep paths, walkways and parking areas clear of obstructions.
- Maintain signs for visitor / public entrances.
- Park in designated, well-lit areas.
- Keep all doors and gates not in use locked.
- Conduct business with visitors by appointment in plant office areas.
- Ensure you are able to call for help. Use phones, 2-way / CB radios in an emergency.
- Work in groups if possible. Work the same operating hours as other workers. If working alone, follow written company procedures.
- Keep cash and valuables locked and hidden.
- Check all security alarms and/or cameras are functioning.


#### Drivers

- Passengers are restricted to company employees or those satisfactory to the driver. The general public are not given access to vehicles.
- All cash/receipts should be kept in a locked vehicle and handed in at the end of the shift.
- Maintain communication with other employees (i.e. dispatch) with 2-way, CB radios or cell phones. If working alone, follow policy.
- Keep vehicles regularly maintained.
- Park in designated, well-lit areas.
- If drivers are to work in high-risk locations, information will be given by office/dispatch prior to job start.
- Never leave your vehicle unlocked at night or while away on breaks.

#### Emergency Response Plan- Summoning Assistance

Workers shall:

- Immediately call for assistance if they are a victim of or witness workplace violence. If alone, call for 9-1-1 police assistance, followed by a call to your supervisor. If working in a group, call the supervisor or co-worker.
- EMERGENCY PHONE NUMBERS shall be posted at all worksites.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

Supervisors shall:

- Call 9-1-1 and get assistance from the police in a violent situation. If required, call for ambulance services as well.
- Keep all other employees in a safe area away from the parties involved.
- Do not attempt to physically separate the parties involved if the violent behavior is on-going.
- Safely remove from the area anything that could be used as a weapon.
- Provide all necessary information to police if required.
- Report the incident to senior management as soon as possible.

### Reporting Workplace Violence / Harassment

All workers who have been the victim of or witnessed workplace violence or harassment shall report the following information to their supervisor:

- Date, time of the incident;
- Location of the incident;
- Who were the parties involved;
- Description of the altercation/incident. Contributing factors. Physical or verbal issues. Outcome.
- Any information about other witnesses;
- Possible recommendations for prevention.

**NOTE:** If the Supervisor is the alleged harasser, then the victim can report to a Manager, Owner, the Ministry of Labour or Police.

### Investigating Workplace Violence / Harassment


Management will investigate all matters involving violence or harassment in the following manner:

- Supervisors will report the incident to management.
- Parties involved will meet to discuss the incident. Corrective actions and solutions will be recommended. (Police actions may determine outcomes).
- If the parties are satisfied with management's response, no further action will be taken. The written investigation and corrective actions will be filed.
- If the parties are not satisfied with management's actions, the Ministry of Labour may be called upon to investigate and offer recommendations.
- The written investigation and any corrective actions shall be available to both the victim and alleged harasser. Privacy concerns and confidentiality will be respected when writing and reviewing reports.
- NOTE: Third-party agencies specializing in workplace violence and harassment may be called in to investigate.
- All revisions to the program to prevent any future recurrences of the reported incident will be given to the J.H.S.C.

### Information about a Person with a History of Domestic Violent Behaviour

The Occupational Health and Safety Act clarifies that employers and supervisors must provide workers with information, including personal information, related to a risk of workplace violence from a person with a history of violent behavior.



 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

However, this duty is limited and applies only when the:

- worker can be expected to encounter the violent person in the course of his or her work and;
- risk of workplace violence is likely to expose the worker to physical injury.

Employers and supervisors must also not disclose more information than is reasonably necessary for the protection of a worker from physical injury.

The employer must take into account a person's right to privacy under certain laws in addition to a workers' right to be informed of workplace violence risks under the O.H.S.A.

It is the policy of Dutch Brothers Ready Mix Ltd. to seek legal advice to comply with this regulation when this type of information is discovered or reported.

### Domestic Violence

Under the O.H.S.A. an employer must take every precaution reasonable in the circumstances for the protection or workers when they are aware, or ought reasonably to be aware, that domestic violence may occur in the workplace, and that it would likely expose a worker to physical injury.

Workers can report their concerns to their employer if they fear domestic violence may enter the workplace.

Employers must be prepared to investigate and deal with these concerns on a case by case basis. In developing a plan, employers and workers may be able to work with the police, courts or other organizations who may already be involved.

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 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

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Workers can report their concerns to their employer if they fear domestic violence may enter the workplace.

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### REQUIREMENTS

#### Documentation:


Occupational Health and Safety Act, Section 32

#### Training:

All employees will undergo a review and understanding of this policy and program.

### REVIEW

Management and the JHSC will review the violence and harassment policy and program annually.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

### PURPOSE - HAZARDS

Management will work closely with supervisors and the JHSC to recognize, assess, control and evaluate workplace hazards and risks as required.

### DEFINITIONS

#### Hazard

A hazard is any situation, thing or condition that may expose a person to risk of injury or occupational disease.

#### Risk

Risk is the chance or probability of a person getting harmed or experiencing an adverse health effect if exposed to a hazard.

### SCOPE

Risk assessment is the process where you:


- A) Recognize and identify hazards that can expose a worker to a risk of injury or disease
- B) Assess the risk of a worker getting harmed if exposed to the hazard
- C) Fix the problem by eliminating or controlling the hazard
- D) Resume work. Monitor and re-evaluate

A risk assessment must take into consideration the nature of the workplace, the type of work, the conditions of work at that workplace and the conditions of work common at similar workplaces.

DBRMX shall, in consultation with the joint health and safety committee or the health and safety representative develop and maintain written measures to eliminate or control the hazards, and potential hazards, identified in a risk assessment.

#### Regulation 854/90:

- 5.1** (1) An employer shall conduct a risk assessment of the workplace for the purpose of identifying, assessing and managing hazards, and potential hazards, that may expose a worker to injury or illness.
- (2) A risk assessment must take into consideration the nature of the workplace, the type of work, the conditions of work at that workplace and the conditions of work common at similar workplaces.
- (3) The results of an assessment must be provided, in writing, to the joint health and safety committee or the health and safety representative, if any.
- (4) If no joint health and safety committee or health and safety representative is required at the workplace, the results of an assessment must be communicated to workers at the workplace and provided, in writing, to any worker at the workplace who requests them.
- (5) The requirement in subsection (1) to conduct a risk assessment is in addition to any specific assessments required by the Act or any Regulation made under it.
- 5.2** (1) An employer shall, in consultation with the joint health and safety committee or the health and safety representative, if any, develop and maintain measures to eliminate, where practicable, or to

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

control, where the elimination is impracticable, the hazards, and potential hazards, identified in a risk assessment conducted under subsection 5.1 (1).

(2) The measures referred to in subsection (1) shall be put in writing and shall include each of the following, as applicable and reasonable in the circumstances:

1. Substitution or reduction of a material, thing or process.
2. Engineering controls.
3. Work practices.
4. Industrial hygiene practices.
5. Administrative controls.
6. Personal protective equipment.

(3) Personal protective equipment shall only be used as a measure if the measures referred to in paragraphs 1 to 5 of subsection (2) are not obtainable, are impracticable or do not eliminate or fully control hazards and potential hazards.

**5.3** (1) The risk assessment required by section 5.1 must be reviewed as often as necessary and at least annually.

(2) When conducting the review, the employer shall ensure that,

- (a) new hazards or new potential hazards are assessed;
- (b) existing hazards or potential hazards that have changed are re-assessed; and
- (c) the measures required by section 5.2 continue to effectively protect the health and safety of workers.

(3) Subsections 5.1 (3) and (4) and section 5.2 apply with necessary modifications in respect of any new hazards and potential hazards and any existing hazards or potential hazards that have changed.


### Hazard Recognition and Identification

#### **How do you recognize a hazard...?**

- Make observations onsite
- Look at inspections
- Get worker response / comments
- Know or check legislation
- Client or owner input
- HSE Program
- Experience

#### **There are different types of hazards to think about....**

- **Chemical-** gases, vapours, liquids, solids, plasma, dust, fume or mist.
- **Biological-** living organisms, such as bacteria, viruses, mould, parasites and fungi.
- **Physical-** noise, vibration, electricity, heat and cold, pressure and radiation.
- **Ergonomic-** poorly designed equipment or work process, strain on the body.
- **Psychosocial-** risks of crime, violence / harassment, production pressures.
- **Safety-** housekeeping, falls, pinch points, moving machinery, fire, explosion.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

There are 5 factors that can contribute to hazards at a workplace....

- People – training, communication, education, hygiene practices
- Equipment – protective equipment, maintenance, condition
- Materials – correct use, adequate supply, storage
- Environment – noise, air quality, lighting, physical layout, housekeeping.
- Process – work design, flow, reporting requirements, policies and procedures.

### Assess and Prioritize the Risks

Ranking or prioritizing hazards is one way to help determine which hazard is the most serious and thus which hazard to control first.

A risk matrix, similar to the example below, helps determine the risk rating of each hazard.


The 1st step is to identify the consequence that could occur as a result of the hazard and then determine the likelihood of the hazard occurring.

The intersection of the likelihood and consequence in the chart gives you the risk rating level.

The priority in controlling hazards is used with the risks ranked from low to extreme.

The DBRMX “Hazard Identification and Risk Assessment” form is used for all work sites.

RISK MATRIX: <b>EXTREME</b> - <b>HIGH</b> - <b>MODERATE</b> - <b>LOW</b>							
Consequence x Likelihood = Risk Rating			LIKELIHOOD				
			5	4	3	2	1
			Certain	Likely	Possible	Unlikely	Almost Impossible
CONSEQUENCE	Critical/Fatality	5	25	20	15	10	5
	Serious	4	20	16	12	8	4
	MA+LTI/MOD	3	15	12	9	6	3
	MA	2	10	8	6	4	2
	First-Aid	1	5	4	3	2	1

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

## WORKPLACE ASSESSMENTS

**Low/Acceptable risk** – The total numerical value is calculated to be between 1 and 5, the controls are considered adequate to mitigate the risk and no other action is required.

**Moderate** – The total numerical value is calculated to be between 6 and 9. Consideration should be given to additional measures reducing risk. Work can proceed, however controls must be maintained to ensure that the risk does not increase.


**High** -- Any risk assessment with a determined numerical value between 10 and 15 is considered to be a critical task. Safe work practices or procedures will be documented for all critical tasks.

**Extreme** - The total numerical value is calculated to be between 15 and 25, the risk is unacceptable. Work must not proceed until risk is reduced to a lower level. Controls including training, tools, equipment, safe work practices and procedures are required to reduce risk. Tasks that have a high-risk rating are not to be carried out without approval from management.

### Hazard Control

Once you have established your hazards and assessed the risks of each, you can decide on ways to control each specific one. Hazard control methods are often grouped into the following categories:

- **Elimination (including substitution):** remove the hazard from the workplace, or substitute (replace) hazardous materials or machines with less hazardous ones.
- **Engineering Controls:** includes designs or modifications to plants, equipment, ventilation systems, guards and processes that reduce the source of exposure.
- **Administrative Controls:** controls that alter the way the work is done, including timing of work, policies and other rules, and **work practices** such as standards and operating procedures (including training, housekeeping, and equipment maintenance, and personal hygiene practices).
- **Personal Protective Equipment:** equipment worn by individuals to reduce exposure such as contact with chemicals or exposure to noise.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	

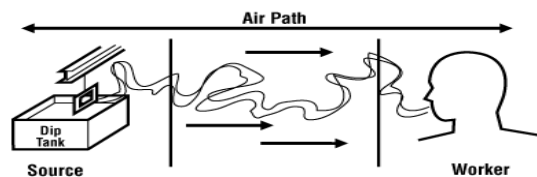
## WORKPLACE ASSESSMENTS

*Personal protective equipment shall only be used as a measure if the other control measures are not obtainable, are impracticable or do not eliminate or fully control hazards and potential hazards).*

### **Where are controls used?**

Controls are usually placed:

1. At the source (where the hazard comes from)
2. Along the path (where the hazard travels)
3. At the worker



Controls placed at the source are preferred. The last line of defense is typically controls placed at the worker, like PPE.

**Using procedures detailed in this DBRMX HSE Program for specific tasks should be one of your first steps to control hazards.**

### **D) EVALUATE AND REVIEW**

It is important to monitor both the hazard and the control method to make sure that the control is working effectively and that exposure to the hazard is reduced or eliminated.


Some tools include physical inspection, testing, exposure assessment, observations, incident reports, employee feedback/input.

Be sure to answer the following questions:

- Have the controls solved the problem?
- Is the risk posed by the original hazard contained or reduced?
- Have any new hazards been created?
- Are new hazards appropriately controlled?
- Are monitoring processes adequate?
- What else can be done?

The risk assessment must be reviewed as often as necessary and at least annually.

The results of an assessment must be provided, in writing, to the joint health and safety committee or the health and safety representative

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Workplace Assessments</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 12	


## WORKPLACE ASSESSMENTS

If no joint health and safety committee or health and safety representative is required at the workplace, the assessment must be communicated to workers at the workplace

### REQUIREMENTS

- Mining Regulations 854, Section 5.1, 5.2, 5.3



 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Emergency Response Planning</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## EMERGENCY RESPONSE PLANNING

### PURPOSE

The OHSA requires that Emergency Response Procedures be developed for each site. This section outlines the requirements necessary to develop these procedures.

### SCOPE

#### HOW TO DEVELOP A PLAN

Development of the plan should include the following elements:

##### Hazard identification

Involves a review of potential onsite hazards and potential risks of each. It should be followed up with an appropriate emergency response to control the hazard. A thorough review should include the following points:

- equipment, materials
- environmental concerns
- SDS review
- traffic and public roadways

##### Emergency Resources

Identify which resources are available and have plans in place for any deficiencies.

The cement plant resources include:

- 911 emergency system using landline
- emergency contact list / hospital information posted on the safety board
- fire extinguishers installed throughout the plant
- fire prevention and protection devices in the plant
- first aid kit / workers trained in First Aid/CPR
- spill kit
- eyewash station in the washroom

##### Communication Systems

Reliable communication equipment must be used to relay accurate information quickly. It is always a good idea to have a backup system in place.

Equipment includes:


- Telephone landlines
- Cell phones
- 2-way radios

Emergency phone numbers, supervisor numbers, hospital information and the site location will be on the DBRMX Emergency Contact sheet posted on the plant safety board.

##### Administration of the Plan

Administering and organizing the emergency plan is vital to its effectiveness. Normally the person in charge of emergency response has this task (i.e. Supervisor). They must ensure:

- That everyone understands their roles and responsibilities
- That emergency resources are kept at adequate levels during the course of the project.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Emergency Response Planning</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## EMERGENCY RESPONSE PLANNING

It is important to review the plan after an emergency in case changes are required.

### Communication of the Procedure

To be effective, the Emergency Response procedure (see below) must be clearly communicated to all site personnel. This procedure will be posted on the plant safety board.

### Debriefing and Post-Traumatic Stress Procedure

The recovery process after an emergency is a critical step. Many people are unaccustomed to dealing with emergencies and may need assistance or recovery time after an emergency.

Debriefing is necessary to review how well the plan worked and corrections may be needed.

### PROCEDURE

In case of an emergency, the supervisor on site shall take control and proceed according to the following guidelines:

#### 1. ASSESS THE SITUATION

- Remain calm
- Identify the emergency, problem, hazards, and who is involved.
- Try to identify the cause that must be controlled

#### 2. TAKE COMMAND

- The most senior person on site should take charge
- Assign duties to specific individuals

#### 3. CALL EMERGENCY SERVICES


- Charge someone with the responsibility to call Police, Ambulance or Fire Department and instruct him/her to report back with the information as to when help will arrive.
- As a rule, sites will have a list of emergency numbers posted. In smaller projects or those of short duration, a site-specific list of emergency numbers may not be available. In this instance, call the office by any means available (cell phone, two-way radio).
- Never leave the victim alone.

#### 4. ADMINISTER FIRST AID

- Ensure that First Aid is provided by a qualified person.
- Get an AED if available
- There should be at least one person at each site who is trained to administer First Aid (Standard or Emergency as required).
- Organize the workforce for a headcount and emergency assignments

#### 5. PROVIDE PROTECTION

- Eliminate further losses and safeguard the area. Control the energy source causing the emergency.
- Protect victims, equipment, materials, environment, and accident scene from continuing damage or further hazards.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Emergency Response Planning</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## EMERGENCY RESPONSE PLANNING

- Divert traffic, suppress fire, prevent objects from falling, shut down equipment or utilities, and take other necessary measures. Use spill response if required.
- Protect all persons (workers and members of the public) from dangers arising from the emergency.
- Evacuate area if necessary for protection.

***Preserve the accident area; only disturb what is essential to maintain life or relieve human suffering and prevent immediate or further losses.***

### 6. MAINTAIN CONTACT

- Keep emergency services informed of the situation.
- Contact utilities such as gas and hydro where required
- Exercise increasing control over the emergency until hazards are controlled

### 7. GUIDE EMERGENCY VEHICLES

- Have someone waiting to alert and guide the emergency vehicles to the location of the emergency scene.

### 8. OBTAIN NAME OF HOSPITAL OR EMERGENCY CENTRE

- Get information (name, address) about the location where the victim is being taken.

### 9. ADVISE MANAGEMENT


- Contact Management with details of the incident. The information must be detailed enough for Management to notify relatives of the victim and the authorities if necessary.
- Complete any required incident investigation forms.

### 10. PRESERVE ACCIDENT SCENE

- Barricade or rope off the area to avoid disturbing the conditions at the time of the incident as much as practical. The area should remain isolated until authorities have an opportunity to investigate.

### 11. PRESS RELATIONS

- Refer all questions of the press or news media to a delegated person at head office. Simply state that all actions to relieve suffering are being taken and that all other enquires be referred to head office.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Employee Safety Training</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 2	

## EMPLOYEE SAFETY TRAINING

### PURPOSE

The Occupational Health and Safety Act requires that workers receive information, instruction and competent supervision to protect their safety. DBRMX believes that effective training is absolutely essential for all workers and their safety.

### SCOPE

#### Worker / Supervisor Training

All new workers will have an orientation session prior to or shortly after beginning work. This will include:

- Review of the “New Worker Orientation”: in person and/or digitally.

Supervisors will also receive:

- MLTSD Supervisor Awareness training

#### Worker Awareness

All workers will receive the MLTSD mandated “Worker Awareness” training.

#### First Aid

The company follows the WSIB regulations for worker training in Standard First Aid / CPR or Emergency First Aid / CPR for all worksites.

#### WHMIS GHS

All employees will receive WHMIS training as required by current legislation.

#### Transportation of Dangerous Goods

Required employees will be trained in the transportation of dangerous goods by a qualified third-party. Training is currently required every 3 years.

#### Driver Training (MTO regulations where applicable)


All drivers must hold a valid and current driver’s licence for the type of vehicle they are driving. An abstract will be ordered by the company on a regular basis to confirm that licences are valid.

All new drivers must be paired with an experienced DBRMX driver to complete an in-vehicle orientation and driver observation.

#### Joint Health and Safety Committee- Part 1 and 2 certifications (where applicable)

#### Safety talks

Safety talks will be provided on a regular basis. Each employee must read and acknowledge they have reviewed the safety talk.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Employee Safety Training</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 2	

## EMPLOYEE SAFETY TRAINING

### Task Specific Training

Training may be required for some employees working in specialized jobs or performing certain tasks. Training may include written procedures or instructions or formalized courses and training sessions.

### Annual Health and Safety Meeting


The company organizes an annual Health and Safety meeting. This meeting is designed to be a general review of the company's health and safety policy, program and individual responsibilities of all parties. The meeting will include a review on selected topics. All workers are required to attend. The meeting may be held in-person or virtually.

## REQUIREMENTS

### Legislation:

WSIA

OHSA, Sections 9, 37, various

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Employee Safety Training</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 1	

## EMPLOYEE SAFETY TRAINING

### PURPOSE

Workplace inspections are vital to identify hazards and maintain safety standards. Inspection reports will be filed and all outstanding action items needing attention will be recorded, circulated and reviewed.

### SCOPE

#### Methods of Inspection

1. Plant Monthly Inspections – scheduled inspections conducted monthly by J.H.S.C. members at the concrete plant site. The conditions of the site must be examined on a regular basis to promote safety.
2. Daily Inspections – of all mobile equipment and commercial trucks shall be conducted and logged immediately prior to operation by the operator or driver. This is to ensure that the piece of equipment or truck is in safe operating order. Submit copies of inspections.
3. Pre-Operational / Maintenance Inspections- on processing equipment will be completed as required by the manufacturer. Constantly monitor equipment and record and report any issues.
4. Spot Inspections – unscheduled inspections by the supervisor or management to promote safety.

#### Remedial Action

It may be necessary to take remedial action if substandard or hazardous conditions are found. Work may be stopped until all members of the inspection team agree with the suggested course of action. The condition(s) will be recorded on the inspection report.

#### Reporting

The inspection reports shall be circulated and reviewed by the Safety Team or Management/Supervisor.


#### Follow-Up

Follow-up reporting on deficiencies must be carried out by the Safety Team, Supervisors, and / or J.H.S.C. members. All work done will be filed. All workers affected by the repair or action will be notified.

### REQUIREMENTS

#### Legislation:

OHSA, Section 9 (23-29)

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Working Alone</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 1	

## WORKING ALONE

### PURPOSE

These procedures are in place to ensure employees understand that if they are working alone, they are monitored and able to summon assistance if needed.

### PROCEDURE

#### Working Alone

Management should take every effort to avoid persons working alone. When it cannot be avoided, the following steps must be implemented before work begins:

- A worker assigned by a supervisor to work alone in a workplace shall be well trained, experienced and a competent person.
- Means of communication with the worker must be provided in the form of appropriate two-way radio contact and/or cell phone.
- A plan to check-in with the supervisor or their designate, throughout the shift at regular intervals must be established.
- If at check-in, contact with the worker cannot be made, the site must be visited immediately if possible, by a supervisor or other workers. If no one is able to check immediately, then emergency services (911) should be called.
- The worker must be visited by the supervisor at least once during their shift.
- Contact must be made every time the worker leaves the workplace or is away from their means of communication (i.e. 2-way radio). Indicate a length of time away from the workplace and make contact upon return.
- The worker must communicate at the end of the shift that work has stopped, and the worker is leaving the site.

This policy generally does not apply to drivers who are parking their truck in the yard at the end of their shift.


#### After Hours

In addition to the above procedures, the following should apply when working alone after hours:

- The contact and check-in policy should be confirmed. It may involve different supervisors or different means of communication
- A spouse or family member should know your work location and schedule. They should also have the supervisor's contact information

#### Plant Entrance Gate Procedure

The last driver leaving the plant yard at the end of the day is required to lock up the plant and entrance gate. A board will be posted in the plant office that shows the drivers working that shift, and whether or not they have finished and left for the day. Driver's must check the board and, if they are the last one to leave, they must turn off the lights, secure the building, close the four overhead garage doors on the plant and lock the entrance gate.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Mixer Hazards</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## MIXER HAZARDS

### PURPOSE

It is essential that all drivers understand the hazards present and the associated controls for those hazards when operating the mixer trucks.

### SCOPE

#### Washout Water at Yard

Under no circumstance is any driver to discharge washout water anywhere in the yard at any point, other than the washout pond.

Please use the designated locations along the pond to washout a vehicle. If there are concerns or issues with the pond, please let the supervisor or dispatch know immediately.

#### Cement Dermatitis

Skin and eye contact with cement products, including ready-mixed concrete, has long been known to cause a range of health conditions among exposed workers. Concrete truck drivers may contact wet concrete during loading, unloading and cleanup operations.

Contact irritates the skin because:

- cement is a highly alkaline material (pH 12-14) when wet;
- it reacts with skin, mucous membranes, and eye moisture;
- it is hygroscopic, drawing moisture from skin;
- it's abrasive;
- it causes allergic skin responses because it contains hexavalent chromium, a powerful skin sensitizer.


There are four types of skin conditions caused by contact with cement products:

1. mild irritant contact dermatitis (MICD), characterized by dry or irritated skin which may include scaling, itching, burning and redness;
2. irritant contact dermatitis (ICD), a more intense condition which may be accompanied by pain, itching, blisters, rashes, fissures, and watery discharge;
3. allergic contact dermatitis (ACD), an immune response caused by sensitization to hexavalent chromium and other metals in the cement, which results in skin disruptions similar to ICD and is provoked by subsequent exposure to cement;
4. caustic burns, second and third degree burns resulting in blisters, dead or hardened skin, and/or black or green skin.

Protection from contact with cement products rests on using best practices:

- washing hands with running water and pH-neutral or mildly acidic soaps;
- wearing correct gloves (butyl or nitrile rubber);
- trying a neutralizing spray on the hand;
- wearing long sleeved shirts taped inside gloves;
- wearing rubber boots with pant legs taped inside;
- never letting cement or concrete stay on skin or clothes;



 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Mixer Hazards</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## MIXER HAZARDS

- seeing a doctor for any persistent skin problems.
- workers should never use lanolin or petroleum jelly as a skin protector because it can seal cement residues to the skin.

### Returning Concrete to Trucks from Crane Bucket Policy

Please be aware that some contractors may ask you to allow them to return concrete back into the truck from the crane bucket. This is not allowed under any circumstance.

This is a safety concern for the following reasons:

- the bucket will sway and is not in control
- there is no anchor point for a worker to be tied off effectively
- the bucket will move, causing struck by/pinch point hazards
- it is not possible to maintain 3-points of contact while holding the bucket above the truck
- the platform on the truck is far too small for an employee to move if the bucket were to sway towards them.

It is the driver's responsibility to work safe. If someone asks to put concrete back into the truck, you must refuse. Please call into Dispatch if it becomes a problem or if the contractor has issues with your refusal.

### Safe Wash Down Areas

All trucks need to wash down after unloading. While most sites have designated areas to wash down, some sites don't always have this option.

To ensure that wash material is not left improperly onsite and that there are no company or municipal violations, it is the driver's responsibility to find a suitable wash down procedure PRIOR to unloading any concrete.

When you are on a job site and need to wash down, you must use:

- the Enviro Guard Wash Down System,
- a wheelbarrow, or
- an approved wash down area as designated by the project manager/client.


Municipalities have strict rules governing the control of contaminants entering storm sewers. Under NO circumstance is a worker allowed to wash down on, by, or near a storm sewer, including washing down upstream from a storm sewer, where the contaminant could flow down into the sewer, even if a client asks you too.

If you cannot find a suitable area to wash down, then you are not to unload.

## PROCEDURE

When cleaning the mixer drum, please follow these procedures:

1. Suggested best time for entering mixer is A.M. when drum is clean and dry.
2. Dispatch must know who is cleaning the drum and where the cleaning is being done.
3. All equipment used must be inspected before use to ensure it is in good working order.
4. An electric air gun should only be used if armored cable is used.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Mixer Hazards</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## MIXER HAZARDS


5. If a diesel compressor is used, it must be positioned so that fumes are not drawn into mixer. It must be stationed at least 25 feet away.
6. Personal protective equipment required:
  - safety boots
  - safety goggles
  - hearing protection (i.e. earmuffs)
  - proper gloves
  - respirator, either N95 or half-facepiece cartridge type
  - hardhat, if falling concrete is a hazard
7. Only one person to be in the mixer at any one time.
8. A person outside the mixer drum must act as an attendant for the person inside the mixer drum.
9. A means of communication between the attendant and the person inside must be established. A portable radio must remain in the drum with the worker until they have completed.
10. Before entering drums, it should be determined how evacuation will occur if necessary.
11. Inform Dispatch when the worker starts the cleaning.
12. Keys for the mixer truck must be out of the ignition and on the person inside the mixer drum.
13. The front air piston that controls the mixer rotation on the front of the truck, located on the hydraulic pump, must be disconnected, and a lock and tag placed on the plunger. The person inside the mixer drum must hold the lockout key.
14. The hatch MUST be off and positioned towards bottom for easy access and ventilation.
15. Hazards to look for and assess inside the drum:
  - sharp fins
  - unbalanced or improper footing
  - any overhead concrete which may fall
16. When complete, remove all tools/PPE from the drum, remove lock and tag and return drum to operational status.
17. Inform Dispatch when the worker has finished the cleaning.

### Acid Wash Procedures

#### Heavy Acid

Wind can cause some challenges when applying Acid or ZEP, therefore this must be completed on a calm day.

1. Park ready-mix truck in designated area at ZEP Station
2. Put on proper protective equipment:
  - Clothing (rain suit)
  - Eye protection
  - Fitted Respirator
  - Hard hat
  - Safety boots
3. Wash down truck
4. Open Acid Container – Hydrochloric Acid
5. Use acid pump and distribute a very small amount into a pail (you may dilute with water if too strong)

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Mixer Hazards</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## MIXER HAZARDS

6. Using your acid brush, apply the acid to the built-up area. Allow acid to sit (approx. 10 minutes)
7. Re-apply acid
8. Power wash the entire vehicle
9. Rinse off your rain suit, arms, pants, etc. to remove any possible contact.

ACID or ZEP must NEVER touch any chrome, aluminum, cab, or body paint. Treat only the built-up areas and be aware of excess acid dripping off the treated area. Rinse thoroughly making sure all product is flushed away.

### ZEP Acid

Wind will cause some challenges when applying ZEP, as it is a foam and will blow around, therefore this must be completed on a calm day.

1. Park ready-mix truck in designated area at ZEP Station
2. Put on proper protective equipment:
  - Eye protection
  - Hard hat
  - Safety boots
  - Long sleeves are highly recommended to cover exposed skin
3. Check to ensure the proper chemical is connected; "HEAVY DUTY TRUCK FOAM"
4. Connect the air line from the reel, to the fitting on your truck
5. Turn on the foaming dispenser
6. Using the wand, proceed to spray the fenders, drums, pedestal, conveyor, back of truck (Do not spray chrome, aluminum, cab)
7. Using your acid brush, scrub the area. Allow to sit (approx. 10 minutes)
8. Re-apply ZEP if needed
9. Power wash the entire vehicle


You may also use the Purple Power at this time to wash the cab, rims, tanks, etc. Use a ratio of 1-part Purple Power to 10 parts water, or 1-part Purple Power to 5 parts water.

### Hazardous Material Handling

#### Acids and Caustics

- Do not store acids or caustics in glass, near heat or steam pipes, or in direct sunlight. Expansion in the containers due to the heat may cause a fire or explosion.
- Rubber gloves, aprons, safety boots and a face shield shall be worn when handling acids or caustics.
- Drums or containers should be emptied by gravity only.
- Acid or caustic carboys should not be moved unless they are securely stoppered and wired.
- Never pour water on top of acid. The acid should be added to water in small quantities.

When acid gets on any part of the body, including the eyes, flush immediately with plenty of water and seek medical attention if needed.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Mixer Hazards</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## MIXER HAZARDS

### Concrete Delivery to Site

When employees deliver concrete to a job site, the following items are required prior to off-loading:

- Instructions on any relevant job site hazards;
- Adequate access to the entrance and exit of the job site;
- A safe level operating area for the concrete truck;
- Adequate lighting, especially during dawn, dusk, and night;
- Signalers provided as required for all reversing;
- The discharge area (communicated if possible, to the driver prior to delivery);
- Location of a proper and designated wash down area;
- Minimum setbacks must be maintained from any overhead electrical conductors or wires as required by legislation;
- Only the concrete driver is to access the concrete truck platform, ladder, or truck;
- The concrete truck driver shall only perform tasks related to concrete delivery and shall not handle or operate any other equipment on site;
- A clear walkway around the truck shall be provided for all stationary work. This may result in only one truck at the discharge point at one time;
- A one metre separation is suggested between trucks at all times.

### Concrete Delivery to a Crane Bucket Policy

- Must have a 12-15 foot "pick point" landing area behind the back of the cement truck.
- The concrete bucket "swamper" is the only person able to handle, signal, raise or land a concrete bucket.
- Concrete drivers must not go beyond the rear of the truck while the bucket is being hoisted or landed.
- Under no circumstances are crane loads or concrete buckets permitted to be lifted over the truck or driver at any time.
- If the concrete load is required to be checked by climbing onto the truck, the driver must do so only when all concrete buckets are placed securely on the ground and not moving.


### Concrete Delivery to Floors / Sidewalks Policy

A communication plan must be established between the work crew and all concrete drivers that includes:

- the appropriate level of concrete to be poured at all times;
- when to start and stop pouring.

The policy should also include:

- limiting the need for concrete trucks to reverse;
- adequate ventilation inside the buildings in order to avoid the accumulation of carbon monoxide;
- communication with the driver noting all potential overhead hazards. Elimination of the hazard to prevent contact with the truck is preferred.
- a safe lane for the discharging of concrete, to avoid interaction with pedestrian and vehicular traffic.
- ensuring all chutes are scraped clean and locked in position on the driver's side of the truck to ensure they are not free moving when the truck leaves the pour site.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Mixer Hazards</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## MIXER HAZARDS

### Concrete Delivery to a Pump Truck Policy

- the pump truck boom should never be moved over the concrete truck or driver;
- the pump truck must maintain the proper setback from overhead electrical wires;
- a communication plan must be established between the pump operator and concrete driver that includes determining the appropriate level of concrete to be maintained in the pump at all times, and when to start and stop pouring;
- drivers must be made aware of the emergency stop locations on the pump truck prior to discharging concrete;
- concrete must not be poured into the pump truck hopper until the pump operator has primed the pump to avoid plugging or back pressure, that could cause projectile hazards.
- unused concrete in the pump may only be discharged back into the concrete mixer if workers have been trained and follow safe practices found within the specific work instruction.

### Concrete Delivery to Curb or Paver Machine

- a communication plan must be established between the curb or paver machine operator and the concrete driver that includes determining the appropriate level of concrete to be maintained in the pump at all times, and when to start and stop pouring;
- no worker is permitted to go between the truck and the curb or paver machine while the truck is in motion;
- the driver will be required to lock and unlock the concrete truck chute when making turns.

### Discharging Concrete

Discharging concrete is typically done using three processes:

1. Discharge Moving: A worker is driving the ready-mix truck to discharge concrete (curb and wall machines, sidewalks, floors).
2. Discharge Stationary from Ground Level: A worker is located on the ground next to the truck to discharge concrete (wheelbarrows, buggies, crane bucket, tele-belt, and conveyor).
3. Discharge Stationary from Back or Top Truck Platform: A worker is situated on their truck platform to discharge concrete (pump truck, crane bucket).

The questions below assess the best location to work from, prior to the start of concrete discharge:

1. Performing Work  
Is it necessary to perform work from the back or top platform?  
If NO, work from the ground
2. Platform Condition  
Do the platforms meet all of the following?
  - in good condition and free of obstructions (including any part of the chute)
  - level, slip resistant tread (expanded metal surface)
  - free of excess contamination (oil, grease, excess mud, concrete build up, etc.)
  - back platform minimum dimension is 60 cm x 90 cm (24" x 36")
 If any question is NO, work from the ground
3. Fall Prevention
  - are safety boots in good condition? (adequate slip resistant tread – free of excess contamination)
  - can platform be safely accessed from the truck ladder?



DUTCH BROTHERS  
HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Mixer Hazards

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 8

### MIXER HAZARDS

- is an adequate handrail installed to provide stability while working on the platform?
- can a balanced body posture be maintained while on the platform?
- will concrete be removed from the chute prior to swinging the chute?
- will 3-point contact be maintained at all times while swinging the chute? (both feet planted on the platform and one hand gripping the handrail)

#### If any question is NO, work from the ground

##### Locking Chutes When Moving

There are concerns about trucks exiting jobs, especially with uneven ground present, because the chute can move or swing potentially causing injury or damage.

Please ensure people are not standing or working near your chutes, when you have them folded down, especially when extra chutes are attached. Also, drivers are to ALWAYS have their chute LOCKED when moving! This becomes more dangerous when chutes are added, as now the chute is longer, heavier, and swings much faster.

For pump jobs, this is not an issue as there is no need to fold down the chute.

##### Towing/Pulling Vehicles Policy

This policy is for any worker that is going to use a tow strap to pull or assist another vehicle or piece of equipment.

When pulling a heavy truck or machine, please use the shackles and nylon straps provided. Always hook up the shackle and tow strap to the proper location on the vehicle (i.e. engineered tow hooks).


When you are pulling with a strap, before you put force into the pull, there is to be no slack on the strap. Putting slack on the strap, then accelerating, will not only guarantee damage to the truck, but may cause an injury if the strap fails, or the hook is pulled from the truck.

##### Enviro Guard Wash Down System Procedure

The Enviro Guard Chute Wash System lets you clean your chutes efficiently without creating an environmental hazard. The stone is retained in the lightweight bucket while the cementitious slurry and sand is pumped back into the drum.

##### Procedure for Use:

- 1) When empty proceed to wash down area.
- 2) Put on safety glasses.
- 3) Hang discharge line onto your hopper.
- 4) Attach the containment bucket to the concrete chute on truck.
- 5) Close the lower valve on the side of the pump.
- 6) Connect suction pipe to the hopper of truck then to lower suction line on the pump.
- 7) Connect the discharge hose to the upper discharge connection on the pump.
- 8) Connect air to the pump from the air supply from your truck. Turn on air supply.
- 9) Turn the pump on using the valve and proceed to wash down the chutes and the truck. All slurry water and sand is pumped from bucket into mixer drum.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Mixer Hazards</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## MIXER HAZARDS


- 10) When completing wash down, the pump must be cleaned out using water. Hang the bucket off your chute from one side, so the water flows towards the suction line. Flush system with clean water to remove all the sand, so only stone remains. Only stone should remain in the containment bucket.
- 11) Dump the stone on the ground.\*
- 12) Flush the system again for a minimum of 30 seconds with fresh water.
- 13) Turn off truck supply air and disconnect the airline.
- 14) Open lowest valve to drain system.

\*You may only dump the stone if you are in an area that is currently gravel. If it is not, see the project supervisor.

If you are the last truck.....

- 15) Disconnect suction line from the pump and containment bucket and drain the line by lifting the lineup.
- 16) Disconnect discharge line, while leaving it in the hopper, and drain the line.
- 17) Open the lower valve and tilt the pump towards the valve to drain remaining water.
- 18) Roll up airline and place on top of pump.
- 19) Remove discharge line from hopper and put in designated area.
- 20) Store all the equipment neatly in the tool trailer.

Report to dispatch any issues or potential problems with the system, at your next call-in.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Fall Protection</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## FALL PROTECTION

### PURPOSE

The purpose of this section is to establish the minimum requirements and guidelines to be used to protect employees from falls when they are working at elevated positions or are exposed to potential fall hazards.

### SCOPE

**NOTE:** Location specific fall protection plans exist for certain locations at the London Plant. They are posted on the safety board. Please review these procedures before commencing any work at heights at the plant. If you have any questions ask your supervisor or the plant manager.

This procedure is applicable to all employees, and any subcontractor(s) employed by DBRMX

This procedure provides the minimum requirements to be implemented by all employees and subcontractors. Where a Client's requirements are less stringent than those in this procedure, the requirements of this procedure shall still be implemented. Where a Client's requirements are more stringent than those in this procedure, the Client requirements shall be adhered to.

### Background

Working from heights is a high-risk activity. Risks can be associated with the use of ladders, personnel lifts, or working on elevated walkways. Proactive protective measures must be taken prior to working at elevated heights.

To achieve 100% fall protection, either primary or secondary fall protection systems are used. In some instances, a combination of both may be required.

### Legislation

According to Ontario Regulation 851, Industrial Establishments:

#### Fall Hazards: Section 85

Where a worker is exposed to the hazard of falling and the surface to which he or she might fall is more than three metres below the position where he or she is situated,

- a) the worker shall wear a serviceable safety belt or harness and lifeline that is adequately secured to a fixed support and so arranged that the worker cannot fall freely for a vertical distance of more than 1.5 metres; and
- b) the fall arrest system described in clause (a) shall,
  - (i) have sufficient capacity to absorb twice the energy and twice the load that under the circumstances of its use may be transmitted to it, and
  - (ii) be equipped with a shock absorber or other devices to limit the maximum arresting force to 8.0 kilonewtons to the worker.

#### Fall Hazards: Section 86

Where a worker is exposed to the hazard of falling into liquid that is of sufficient depth for a life jacket to be effective as protection from the risk of drowning, there shall be an alarm system and rescue equipment, appropriate in the circumstances, to ensure the worker's rescue from the liquid and,





DUTCH BROTHERS  
HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Fall Protection

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

### FALL PROTECTION

- (a) the worker shall wear a life jacket; or
- (b) the employer shall develop written measures and procedures to prevent the worker from drowning and shall implement them.

#### Guardrails: Section 13-15

13.

(1) Subject to subsection (2), there shall be a guardrail,

- (a) around the perimeter of an uncovered opening in a floor, roof or other surface to which A worker has access;
- (b) at an open side of,
  - i. a raised floor, mezzanine, balcony, gallery, landing, platform, walkway, stile, ramp or other surface, or
  - ii. a vat, bin or tank, the top of which is less than 107 centimetres above the surrounding floor, ground, platform or other surface; and
- (c) around a machine, electrical installation, place or thing that is likely to endanger the safety of any worker.

(2) Subsection (1) does not apply to,

- (a) a loading dock;
- (b) a roof to which access is required only for maintenance purposes; and
- (c) a pit used for,
  - i. work on an assembly line, or
  - ii. maintenance of vehicles or similar equipment.

14.

(1) A guardrail shall,

- (a) have a top rail located not less than 91 and not more than 107 centimetres above the surface to be guarded;
- (b) have a mid rail;
- (c) if tools or other objects may fall on a worker, have a toe-board that extends from the surface to be guarded to a height of at least 125 millimetres; and
- (d) be free of splinters and protruding nails.


(2) A guardrail shall be constructed to meet the structural requirements for guards as set out in the Building Code.

15. A cover on an opening in a floor, roof or other surface shall be,

- (a) secured in place; and
- (b) constructed to meet the structural requirements for loads due to the use of floors and roofs as set out in the Building Code.

18. (1) Subject to subsection (2), an access ladder fixed in position shall,

- (a) be vertical;
- (b) have rest platforms at not more than nine metre intervals;
- (c) be offset at each rest platform;
- (d) where the ladder extends over five metres, above grade, floor or landing, have a safety cage commencing not more than 2.2 metres above grade, floor or landing and continuing at least ninety centimetres above the top landing with openings to permit access by a worker to rest platforms or to the top landing;
- (e) have side rails that extend ninety centimetres above the landing; and

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Fall Protection</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## FALL PROTECTION

(f) have rungs which are at least fifteen centimetres from the wall and spaced at regular intervals.

(2) Subsection (1) does not apply to an access ladder on a tower, water tank, chimney or similar structure which has a safety device which will provide protection should a worker using the ladder fall.

19. Where frequent access is required to equipment elevated above or located below floor level, permanent platforms shall be provided with access by a fixed,

- (a) stair; or
- (b) access ladder.

20. Barriers, warning signs or other safeguards for the protection of all workers in an area shall be used where vehicle or pedestrian traffic may endanger the safety of any worker.

73. A portable ladder shall,

- (a) be free from broken or loose members or other faults;
- (b) have non-slip feet;
- (c) be placed on a firm footing;
- (d) where it,
  - i. exceeds six metres in length and is not securely fastened, or
  - ii. is likely to be endangered by traffic,
  - iii. be held in place by one or more workers while being used; and
- (e) when not securely fastened, be inclined so that the horizontal distance from the top support to the foot of the ladder is not less than 1/4 and not more than 1/3 of the length of the ladder.

### Primary Fall Prevention Systems

Primary fall prevention systems are the preferred choice for performing work in elevated areas. These systems provide walking and working surfaces that are equipped with standard guardrail systems on all open sides. In most cases, primary fall prevention systems are sufficient fall prevention methods and do not require the use of additional (secondary) fall protection systems such as a harness / lanyard system.


### Guardrails

Guardrails are an integral part of most primary fall prevention systems and must be constructed according to the specifications noted in the Regulations.

### Secondary Fall Protection Systems

Secondary fall protection systems should only be used after all efforts to use primary fall prevention systems have been exhausted or when being used together with primary systems. The following minimum standards shall be met:

- Full body harnesses are the only type of harness allowed in a fall arrest system.
- A full body harness and shock-absorbing lanyard must be used when working outside guarded platforms more than 3 m (10 ft) above ground level.
- The use of a second shock-absorbing lanyard may be used to achieve continuous tie-off.
- Fall protection devices (safety harnesses, lanyards, etc.) shall be inspected for damage prior to each use.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Fall Protection</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## FALL PROTECTION

Defective equipment shall be immediately removed from service, tagged and returned to your Supervisor.

- The lanyard shall be attached to the harness connection point (ie. D-ring).
- The full body safety harness/lanyard must be attached to a secure anchor point
- Snaphooks attached to shock absorbing lanyards shall be of the double action/locking type design. Simple spring resistant snaphooks shall not be used for fall protection
- Fall protection devices and systems shall not be used for any other purpose other than employee safeguarding.
- Workers in elevated work platforms or personnel lifting devices shall wear full body harnesses and secure their lanyards according to manufacturer instructions.
- In situations where a fall could result in impalement or other injury (i.e. working over a hot process, operating equipment, etc.) fall protection equipment shall be utilized regardless of the potential falling distance.
- Fall protection devices subjected to shock loading imposed during fall arresting shall be removed from service and tagged.
- Fall protection devices shall be inspected on an annual basis by a qualified external inspection agency as required.
- All workers using fall protection devices must complete training specific to the equipment used including procedures on the use, care, inspection and maintenance of the fall protection devices or systems.

### Anchor Points

The strength of a personnel fall arrest system is based on being attached to an anchor system that does not reduce the strength of the system. Anchor points must be sufficient to resist the arrest force of a fall.

### Lifeline Systems

Lifeline systems are points of attachment for fall protection lanyards and harnesses. Lifelines may be mounted either vertically or horizontally and provide fall protection for personnel working in elevated areas.

- Lifelines shall not be used for any other purpose than fall protection
- Lifelines shall be protected against being cut or abraded (ie. Softeners around lifelines at anchor point)
- Lifelines must be designed, installed, maintained and removed by persons competent and trained in lifeline installations

## REQUIREMENTS

### Training:

All workers using fall protection devices must complete training specific to the equipment used including procedures on the use, care, inspection and maintenance of the fall protection devices or systems.

Training must be conducted by a competent person or organization.



DUTCH BROTHERS  
HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM

## Section: Operators, Vehicles, and Equipment

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 4

## OPERATORS, VEHICLES, AND EQUIPMENT

### PURPOSE

To give all employees instructions for the care and use of their vehicles and equipment

### SCOPE

#### Equipment- General

All workers must be trained on the type of equipment they will be operating. All vehicles, machinery, tools and equipment shall be maintained in a condition that does not endanger a worker.

#### Equipment Pre-Start:

- All vehicles, machinery, tools and equipment must be used in accordance with the manufacturer's operating manuals.
- A daily circle check inspection shall be performed on all mobile equipment prior to start-up by the operator. A company inspection record has been developed for this purpose. Document the inspection and submit copies. Brake tests are included in the inspection:

#### Equipment Brake Testing Procedures

All operators shall follow the manufacturer brake testing procedures for the type of equipment they are operating.


1. Test the brakes according to the manufacturer procedures. A copy of the procedure is provided in the operator's manual. Typically, the procedure is also copied, laminated and placed in the cab of the machine.

#### Equipment Pre-Start:

- Equipment pull cords and emergency stops are to be tested regularly and at least monthly.
- Cables, chains, straps, hooks and other hoisting devices shall be inspected before use for damages like: cracks in welds; links or cords cut or kinked; and abrasions/scarring of materials that could weaken their strength and cause them to break.
- Regularly inspect catwalks and ladders for cracks or loose bolts so they don't fall or break when climbing or standing on.
- No worker shall operate a vehicle or machine unless they are competent to do so.
- Passengers are not allowed in or on a vehicle/machine unless a seat and seat belt is provided, unless it is for training purposes.

#### Equipment Operation:

- Three-point climbing procedures must be used when climbing into the cab of a machine or vehicle.
- Operators must always turn on all beacons and lights when travelling on public roadways, regardless of time of day, to ensure maximum visibility.
- All mixer trucks must have an operating reverse alarm.
- All mobile equipment must have an operating reverse alarm. Before backing up (reversing) your equipment, check your blind spots. If blind spots can't be seen while seated, then either physically get out of the cab to check your path or use someone to guide you.
- Excavators must not reverse unless they swing to travel forward or use a signaller to reverse.
- All exposed moving parts must be guarded to prevent injury.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Operators, Vehicles, and Equipment</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## OPERATORS, VEHICLES, AND EQUIPMENT

- All buckets, blades, forks or other devices shall be lowered to the ground when unattended by the operator, unless proper blocking or jacking is used (i.e. maintenance).
- No worker shall operate a backhoe or similar excavating machine in such a way that it or part of its load passes over a worker.
- Always be aware of overhead hazards, such as power lines. Equipment must maintain minimum distances from power lines. Please notify supervisor if working near a power line. Special procedures may apply.
- A functional parking brake must always be applied when a wheeled machine is unattended. If there is no parking brake or it is inoperable, then other means must be taken to prevent the vehicle/machine from rolling away.
- When operating a tractor backhoe, always ensure the parking brake is applied and the transmission in neutral before swinging the seat around to operate the rear attachments.
- Operators shall not use personal devices or cell phones while operating equipment. The 2-way / CB radios must only be used when it is safe to do so. Do not use the radios when reversing the machine. Do not use radios when working in areas that require your full attention (i.e. near ground workers, etc....)
- If a truck or other vehicle gets stuck and needs help, never push the vehicle from the rear, always pull out the vehicle from the front with a strap or chain. Always get permission from the driver first.

### Equipment Parked – Shutdown

- Machines must be locked and secured with the master key turned off or removed at the end of the shift, nights or when the machine is parked and unattended. This is to prevent unauthorized individuals from operating/starting the equipment.
- Trucks must be parked in designated areas, keys removed and locked.
- Store attachments, tools, buckets, forks, etc. in safe and secure areas when finished with them, even if just for a few minutes. Make sure they are not able to tip over, fall or move suddenly (i.e. wedge loader forks into a stockpile).
- Unsafe or hazardous vehicles/machines/tools must be locked and tagged out and the supervisor must be notified immediately.

### Excavators

Due to limited visibility, the swing zone of an excavator is a no-go zone for any worker while the excavator is operating.


If you need to enter this zone for any reason, you must first:

- clearly communicate your intentions with the operator and get their approval
- the excavator must stop working while you are in the swing zone
- communicate again with the operator when you are away from the zone

Excavator operators must also be aware of hazards in their swing zone. Use a signaller if working in close proximity to objects such as hydro poles, vehicles or buildings.

### Elevated work platforms

Includes any vehicle-mounted device, telescoping or articulating, or both, which is used to position personnel. These include scissor lifts, articulated and telescopic booms.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Operators, Vehicles, and Equipment</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## OPERATORS, VEHICLES, AND EQUIPMENT

Typically, all elevated work platforms will be rented units. Operators must ensure they are familiar with the model before use.

DBRMX employees must follow all the requirements and procedures when using an elevated work platform: Please note that equipment not designed for use as a personnel lift shall not be used (i.e., front-end loader buckets, backhoe buckets).

- Only trained workers are authorized to operate elevated work platforms. Operators are also required to review the owner's manual and shall be given ample time to become familiar with the equipment and its controls before operation is permitted.
- Controls shall be tested prior to use to determine that they are in safe working condition.
- Workers are not permitted to stand on the rails of elevated work platforms.
- A body harness shall be worn, and a lanyard appropriately attached. Ensure you have 100% tie off. Other types of personal protective equipment (PPE) (i.e., safety glasses, gloves), shall be worn according to the specific task.
- Workers shall not be permitted to use an elevated work platform as a means of access.
- Large or excessive amounts of material, excluding tools, shall not be transported in an elevated work platform. Other material lifts would be necessary for such activities.
- Load limits specified by the manufacturer shall not be exceeded.
- Elevated work platforms that can operate horizontally shall set brakes and outriggers, when used, be positioned on pads or a solid surface, and chock wheels before using on an incline.
- Look in direction of travel and make sure that the path is firm and clear of obstructions that may cause the platform to overturn or collide with people, vehicles, etc. Ensure barricades and signs are provided as a means of control if required.

### Quick Couplers

All operators of quick coupler attachments must be trained in their proper use and care.

DBRMX may use more than one type of coupler from different manufacturers, so an operator must be trained on whichever type they are using.


Training for quick couplers shall follow the manufacturer operation instructions and must include:

- engaging, use, disengaging and maintenance procedures.

A copy of the manufacturer's operator manual shall be readily available for each type of coupler being used. Preferably the manual will be stored in the cab of the machine.

### Lock out and Tag out

All workers must know the policies and procedures to lockout and tagout a vehicle, machine or tool due to a defect, hazard or because of repair and maintenance.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Operators, Vehicles, and Equipment</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## OPERATORS, VEHICLES, AND EQUIPMENT


SEE LOCK-OUT TAG-OUT IN PART 1 FOR MORE INFORMATION. WORKSITE LOCATION SPECIFIC PROCEDURES ARE POSTED ON THE SAFETY BOARD

- The process of lockout and tagout is used to de-energize equipment and prevent unscheduled or accidental starting, moving or operating.
- Lockout and tagout ensures a safe work environment that would normally be dangerous if equipment were to shift or operate. This is required on all vehicles and machines when any type of work is required, and the worker may be injured because of the nature of the work performed.
- Lockout and tagout will also be required when a vehicle or machine is unsafe to use because of a defect or hazard (i.e. no brakes on a loader).
- Small tools must be tagged out and removed from service when they are defective or hazardous (i.e. a broken ladder, broken chain). Send all small tools to Aaroc Equipment for evaluation.
- Regular daily maintenance (i.e. checking oil and fluid levels) does not normally require lockout because the worker has not removed any safeguards and the procedure is part of a normal daily routine. The worker is not generally exposed to any hazards. Workers are permitted to perform daily maintenance without lockout if the manufacturer instructions permit. Beyond this daily maintenance however, work is prohibited unless lockout is used.
- If a guard must be removed, lockout is required.

Always refer to the manufacturer instructions for their detailed lockout procedures if available.

- The specific procedures may vary slightly depending on the equipment and set-up.
- Advise your supervisor that the equipment is locked out.

WHEN IN DOUBT, ASK SOMEONE WHO KNOWS

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Forklift Operation</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## FORKLIFT OPERATION

### PURPOSE

To be most effective, operator training should be part of a larger comprehensive forklift safety program. This program should include the following elements:

- hazard identification
- training
- operating procedures
- facility design
- maintenance and repair procedures

### SCOPE

#### Legislation

The Industrial Regulations 851 has specific sections relating to lifting devices. Subsections 51(1) and (2) apply to a "lifting device", defined as:

“a device that is used to raise or lower any material or object and includes its rails and other supports but does not include a device to which the Elevating Devices Act applies.”

This definition clearly applies to forklifts and should be interpreted broadly as including not just the elevating section of it but the entire vehicle.

#### Hazard Identification

Clause 25(2)(d) of the Occupational Health and Safety Act (OHSA) requires an employer to: "acquaint a worker or a person in authority over a worker with any hazard in the work..."

This means that DBRMX must identify all hazards associated with the machine as it is used in the workplace. In practical terms, the DBRMX supervisor should identify the ways in which a worker who operates or works around a forklift could be harmed or injured, taking into consideration the equipment used, the jobs to be done and the work environment. This hazard information should be communicated to the worker and be part of the training program.

#### Training


Only trained and authorized persons are permitted to operate a forklift. No employees are allowed to operate a forklift without the proper training.

Regulation 851 is more specific and states that a lifting device is only to be operated by a competent person.

In addition to ensuring that the operator of a forklift is appropriately trained, the following measures are suggested:

- Prepare written rules and procedures based on hazard identification for preventing harm, accidents and injuries.
- Ensure that all supervisors and workers who work around forklifts have been informed of the hazards and are instructed in the rules and procedures to avoid harm.
- Inform supervisors and workers of any revisions to the rules and procedures arising from changes in the work.



 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Forklift Operation</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## FORKLIFT OPERATION

A "competent" operator should understand:

- the sections of the OSHA and Regulations applicable to the work
- the hazards associated with the work, including the principles of operation and features of the forklift, workplace conditions and activities that pose actual or potential danger to health and safety in the workplace
- the manufacturer's specifications as they relate to the safe operation and load handling for the class or type of truck that is to be operated
- the workplace-specific procedures and practices that have been established for ensuring worker safety.

A "competent" operator should be able to perform the following procedures:

- pre-operational check
- start-up and shut-down
- general operation: stopping, starting, turning, driving forward and in reverse, parking, operating around personnel
- load handling: selection and security of loads, pick-up and placement, personnel lifting, stacking and restocking
- operational maintenance: refueling


Currently, all DBRMX forklift operators will be trained by a third-party.

### PROCEDURES

#### **Safe Operating Procedures**

The following safe operating rules apply to DBRMX employees who operate a forklift:

- Only trained employees shall be allowed to operate forklifts
- Stunt driving and horseplay shall not be permitted.
- Personnel are not permitted to ride on forklifts except in designated seats.
- Forklifts shall be equipped with a portable fire extinguisher.
- Copies of the manufacturer's operating instructions for each type of forklift shall be readily available for review.
- Forklifts shall have the manufacturer's nameplate showing its weight with attachments, lifting capacity, lift height maximum and other pertinent data. Nameplates or markings shall be maintained in a legible condition and remain in place.
- If an operator does not have a clear view, a signaller must be used.
- Loads must be carried as close to the ground or floor as the situation permits.
- Loads that may tip or fall and endanger a worker must be secured.
- The forklift shall be operated at a speed that will permit it to be brought to a stop in a safe manner.
- The operator shall be required to slow down and sound the horn at areas where vision is obstructed.
- No part of a load must pass over any worker.
- Loads carried shall be secured on the forks to prevent upset / overturn.
- When using rigging to secure or lift loads, ensure the proper working load limit of the rigging is confirmed.
- When a load is in the raised position, the controls must be attended by an operator.
- There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler etc.
- Arms or legs are prohibited from being placed between the uprights of the mast.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Forklift Operation</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## FORKLIFT OPERATION

- When a forklift is left unattended, forks shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set.
- All defects must be reported.

Every forklift should also be equipped with the following:

- a suitable screen, guard, grill or other structure to protect the operator from falling or intruding materials
- warning devices (horn) and lights
- a seat belt

### Facility Design

Poor workplace design can contribute to accidents and injuries. DBRMX should ensure that the following measures are taken as a minimum:

- Overhead and side clearances (through doorways and in rooms) are adequate to permit the safe operation of the forklift.
- Floors, aisles, passageways and outdoor areas are kept clear and free of hazards.
- Storage and racking is designed to facilitate forklift operation.
- Parking areas are designated

### Inspection and Maintenance

Forklifts that are defective, in need of repair or are unsafe shall be locked and tagged out (Danger Do Not Operate) and taken out of service until restored to safe operating condition.

Only qualified personnel shall perform maintenance and repair.


The Occupational Health and Safety Act and Regulation 851 establish legal requirements for the periodic examination of forklifts to confirm their safety and load-handling capability. It is the responsibility of DBRMX to ensure that inspections are completed.

Clause 51(1)(a) of Regulation 851 requires a lifting device to be constructed and equipped in a way to adequately ensure the safety of all workers.

Clause 51(1)(b) of Regulation 851 requires a lifting device to be thoroughly examined by a competent person, before it is used "for the first time" and at least annually, to determine if it is capable of handling its maximum rated load. "For the first time" should be interpreted as "for the first time by the employer".

Clause 51(1)(b) of Regulation 851 requires a "permanent record" of the load-handling capacity examination to be kept. "Permanent record" has a very specific meaning under Regulation 851. A record must be kept for at least one year or such longer period to ensure that at least the two most recent reports or records are kept. This means that if annual examinations were being made, the records would have to be kept for two years. It does not prevent records from being kept for longer periods of time, like the working life-time of the vehicle as would usually be the case.

**Currently all DBRMX forklifts are inspected annually by a qualified third party.**

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Forklift Operation</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 4	

## FORKLIFT OPERATION

### Management responsibility and commitment

DBRMX management understands that the safe operation of vehicles and equipment is essential to protect not only the driver or operator but also the safety of other workers and the public. Furthermore, the preservation and sustainability of the environment is essential.

The procedures and policies described in this section provide instruction, advice, and training to operators and drivers so that incidents can be avoided, and the environment protected. DBRMX will continue to ensure that these procedures are followed in order to comply with all regulatory requirements.


## REQUIREMENTS

### Training:

- All vehicle drivers must have the appropriate license class issued by the MTO (i.e. DZ, AZ)
- All forklift operators must be trained

### Legislation:

- Ministry of Transportation, CVOR requirements
- Industrial Regulations 851, Section 51

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Electrical Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 2	

## ELECTRICAL SAFETY

### PURPOSE

To give all workers an understanding of the hazards involved with electrical equipment.

### SCOPE

#### Injuries

An electrical hazard is a dangerous condition where a worker can or does make electrical contact with energized equipment or a conductor. From that contact, the person may sustain an injury from shock, and there is a potential for the worker to receive an arc flash (electrical explosion) burn, thermal burn or blast injury.

Factors that affect the presence of electrical injury and its severity depend on:

- the magnitude of the electric current
- its transmission (direct or indirect)
- body entry and exit sites
- the path the current takes through the body
- the surrounding environmental conditions (e.g. wet or dry environments)

#### Exposure to electricity can result in a range of injuries:

- cardiovascular system injuries (e.g. rhythm disturbances)
- burns
- nervous system disruption and respiratory arrest
- head injuries, and fractures and dislocations (caused by being “thrown” or “knocked down”) from the severe muscle contractions caused by the current.

According to the Ministry of Labour, thirty thousand (30,000) electrical shock incidents occur every year. Nearly half of these incidents involved people working on electrical equipment while it was energized.

According to the Electrical Safety Authority, the most common cause of occupational electrocution is using an improper procedure (60%).

#### What the law says

Employers need to develop and implement a written health and safety program that supports the control of electrical hazards in the workplace and follow the regulations that apply to electrical hazards in the workplace.


#### Common Hazards

The most common type of work to result in an electrocution is routine work involving repair and maintenance. The following are types of electrical hazards common to the work done by AE:

- repair/ maintenance of energized electrical systems on equipment
- working in close proximity to energized electrical installations (panels, conductors)
- using electric tools, cords, generators
- repairing or using equipment in proximity to overhead power lines

#### Hazard Control

To control the hazard, ensure proper procedures are followed for each task. There may be different procedures required.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Electrical Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 2	

## ELECTRICAL SAFETY

- repair/ maintenance of energized electrical systems on equipment
  - Use Lockout Tagout procedures.
- working on energized electrical installations (panels)
  - Only qualified electricians can repair or install electrical panels or work on live electrical systems
- using electric tools, cords, generators
  - Ensure all tools are inspected before use and in good order.
- repairing or using equipment in proximity to overhead power lines
  - Follow all electrical safety procedures found in the Regulations (ie. Construction Reg. 213, Section 188)


Typically for maintenance and repair of equipment, lockout procedures must be followed.

### REQUIREMENTS

- All workers must understand and follow the proper procedures when working around electrical equipment and the requirement to lockout and tagout.

#### Legislation:

- Industrial Regulations 851, Sections 40-43
- Construction Regulations, Section 188
- Mining Regulations, Sections 155-159,

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Fire Prevention</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## FIRE PREVENTION

### PURPOSE

All workers must understand the fire prevention regulations for all worksites and vehicles.

### SCOPE

#### **Fire Emergency Responsibilities**

Regular inspection of all worksites is done to minimize any unusual fire hazards that may be present. All measures are taken to ensure that these hazards are removed or controlled. Special emphasis is placed on housekeeping and storage practices.

At DBRMX worksites, regular monthly safety inspections are conducted.

At the DBRMX office, monthly safety inspections are conducted as well as fire inspections conducted by professional third-party technicians.

#### **Employee Procedures for Fire Emergencies**


1. Exit the fire area immediately
2. If possible, confine the fire by closing the door in the fire area. Close all doors when exiting.
3. Activate the fire alarm (only applicable at office)
4. Call 911
5. Go to the designated muster point

#### **Supervisors:**

1. Clear the area of all other personnel and visitors, instruct all employees and visitors to evacuate the area.
2. Delegate a responsible person to call 911 if not done already
3. Ensure that all employees and visitors have evacuated the area and assembled at the predetermined muster point.
4. Take count of all employees and visitors to ensure that everyone is present.
5. Act as a liaison to emergency service personnel.
6. Wait for instruction by emergency authorities before re-entering the work area.
7. Complete any required documentation

At the office building, a Fire Safety Plan has been developed. This plan details the fire prevention and protection devices and procedures for the building, including:

- Emergency contacts
- Procedures in case of fire
- Fire extinguishers
- First aid kits
- Fire alarm system: pull stations, heat detectors, smoke detectors, hose cabinets, 24-hour monitoring, emergency lighting
- Fire drills and logs
- Building diagrams

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Fire Prevention</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## FIRE PREVENTION

### Fire extinguishers at worksites must be:

- readily accessible in marked locations
- inspected regularly
- promptly refilled after use

### Extinguishers must be located:

- where flammable materials are stored, handled or used
- where temporary oil or gas fired equipment is being used
- where welding or open flame cutting is being done
- in mobile equipment

Fire extinguishers are classified according to their capacity to fight specific kinds of fire:

Class A – for fires in ordinary combustible materials such as wood and paper where you need a quenching, cooling effect.

Class B – for flammable liquid and gas fires such as oil, gasoline, paint, and grease where you need oxygen exclusion or flame interruption.

Class C – for fires involving electrical wiring and equipment where you need a non-conductive extinguishing agent.

Class D – for fires in combustible metals such as sodium, magnesium, and potassium.

**For most operations, a 4A40BC extinguisher is required.**

### Containing the Fire

All fires can be very dangerous and life-threatening. Your safety should always be your first priority when attempting to fight a fire.

### Before deciding to fight a fire, be certain that:


1. The fire is small and not spreading. A fire can double in size within two or three minutes.
2. You have the proper fire extinguisher for what is burning.
3. The fire won't block your exit if you can't control it. A good way to ensure this is to keep the exit at your back.
4. You know your fire extinguisher works. Inspect extinguishers once a month
5. You know how to use your fire extinguisher. There's not enough time to read instructions when a fire occurs.

### How to Fight a Fire Safely:

1. Always stand with an exit at your back.
2. Stand several feet away from the fire, moving closer once the fire starts to diminish.
3. Use a sweeping motion and aim at the base of the fire.
4. If possible, use a "buddy system" to have someone back you up or call for help if something goes wrong.
5. Be sure to watch the area for a while to ensure it doesn't re-ignite.

### Never Fight A Fire If:

1. The fire is spreading rapidly. Only use a fire extinguisher when the fire is in its early stages. If the fire is already spreading quickly, evacuate and call the fire department.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Fire Prevention</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## FIRE PREVENTION

2. You don't know what is burning. Unless you know what is burning, you won't know what type of fire extinguisher to use. Even if you have an ABC extinguisher, there could be something that will explode or produce highly toxic smoke.
3. You don't have the proper fire extinguisher. The wrong type of extinguisher can be dangerous or life-threatening.
4. There is too much smoke or you are at risk of inhaling smoke. Seven out of ten fire-related deaths occur from breathing poisonous gases produced by the fire.

When using an extinguisher remember...

**P** - Pull the pin

**A** - Aim the nozzle low at base of fire

**S** - Squeeze the handle

**S** - Sweep back and forth at base of fire

Once you've discharged an extinguisher, report it immediately to your supervisor.

### Inspections:

A competent worker must inspect the fire extinguishers at least monthly and shall record the date of the inspection on the tag attached to it.

Annual maintenance inspections will be completed by a 3rd party technician.

### Check that:

- it is well supported; all hangers are fastened solidly;
- it is properly charged (read pressure gauge);
- the discharge opening is clear;
- the ring pin is attached properly;
- the inspection tag is attached and current and
- there are no apparent defects



## REQUIREMENTS


### Legislation:

Mining Regulations 854, S. 41

### Training:

- All workers will review this section during new worker orientations. Office staff will also review the building "Fire Safety Plan"
- Every worker who may be required to use a fire extinguisher will be trained in its use. This section of the program will be reviewed with all workers.



 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## Hot Work

### PURPOSE

The purpose of this policy is to establish hot work safety procedures and to ensure that all hot work operations are performed in the safest manner possible, and in compliance with applicable regulations.

### DEFINITIONS

#### Hot Work defined:

Any work performed that produces an increased risk of fire or explosion from the generation of sparks, flame, ignitable dust or vapour or other sources of ignition and includes welding, flame cutting, soldering, brazing, grinding or other similar work.

### SCOPE

- General good practices before performing hot work include:
- Making sure that all equipment is in good operating order before work starts.
- Inspecting the work area thoroughly before starting. Look for combustible materials in vicinity of job area.
- Clearing any combustible materials around the work zone.
- Using water ONLY if electrical circuits have been de-energized to prevent electrical shock.
- If combustibles cannot be moved, cover them with shields. Protect gas lines and equipment from falling sparks, hot materials and objects.
- Securing, isolating, and venting pressurized vessels, piping and equipment as needed before beginning hot work.
- Posting a fire watch within the work area, including during breaks, for at least 30 minutes after work has stopped. Depending on the work done, the area may need to be monitored for longer after the end of the hot work.
- Shut down any process that produces combustible atmospheres.

### Personal Protective Equipment

#### Eye and Face Protection

Welding helmets or face shields provide radiation, thermal, electrical, and impact protection for face, neck, forehead, ears, and eyes.

The filtered or shaded plate is the radiation barrier. It is necessary to use a filter plate of the proper lens shade to act as a barrier to the harmful light rays and to reduce them to a safe intensity.

Always ensure that the correct lens shade is selected for the type of welding being conducted.


When gas cutting, use a face shield or goggles and ensure that the proper lens shade is used.

If unsure of the type of lens shade required, ask your supervisor.

When grinding, use safety glasses and a face shield to protect from flying particles.

#### Clothing

Clothing should be made of non-synthetic materials such as wool. Woolen clothing is preferable to cotton because it is less likely to ignite. Keep sleeves rolled down and collars buttoned up. Wear shirts with flaps over pockets and

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## Hot Work

pants with no cuffs. Remove rings, watches, and other jewelry. Never carry matches or lighters in pockets. Clothing should be free from oil and grease

Wear flame-proof gauntlet gloves and an apron or leggings. Wear high-cut safety footwear laced to the top to keep out sparks and slag.

### Hearing Protection

Ear plugs or ear muffs must be used when welding, cutting or grinding.

### Respiratory protection

Fume and exhaust extractors are available in the shop. Protection will not be required for most outdoor welding operations if adequate ventilation is available. However, when ventilation is not adequate, respiratory protection must be worn. Typically, a half-mask respirator with cartridges suitable for welding fume should be used. Consult with your supervisor before work begins to select the proper type.

### Welding and Cutting Hazards

Welders are exposed to a wide range of hazards such as radiation, inhalation of toxic fumes and gases, serious burns from hot metal, and electric shocks from welding cable.

There are generally 2 groups: Physical and Chemical Hazards

### Physical Hazards

Non-ionizing radiation

A major source is ultraviolet, infrared, and visible light radiation from welding. Radiation produced by the welding process is mainly non-ionizing.

UV


Exposure to ultraviolet (UV) radiation can result directly from the arc or from a reflection off bright objects such as shiny metal or white clothing. It can cause "arc eye" when sight is not adequately protected.

Symptoms of "Arc Eye"

Certain types of UV radiation can produce an injury to the surface and mucous membrane of the eye called "arc eye". The symptoms include:

- pain - ranging from a mild feeling of pressure in the eyes to intense pain in severe instances
- tearing and reddening of the eye and membranes around the eye
- sensation of "sand in the eye" or abnormal sensitivity to light
- inability to look at light sources (photophobia)

Eyes become watery and painful anywhere from 2 to 24 hours after exposure. The condition may last 1–5 days but is usually reversible with no lasting effects. However, repeated exposure may result in scar tissue that can impair vision. UV exposure may also cause a temporary loss of visual sharpness called "fluorescence." It may eventually lead to the development of cataracts in the eye if eye protection is not worn.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## Hot Work

Skin reddening, commonly known as sunburn, is another hazard of UV exposure. Blistering may occur in extreme cases.

The intensity of UV radiation varies with the type of welding. Generally, the higher the temperature of the welding process the higher the UV radiation.

### Infrared

Infrared radiation is hazardous for its thermal or heating effects. Excessive exposure to the eye may cause damage.

### Visible light

Light is released at high intensity by welding. Short-term exposure can produce “flash blindness” in which vision is affected by after-images and temporary blind spots. Repeated exposure to high-intensity visible light can produce chronic conjunctivitis, characterized by red, tearful eyes.

### Noise

Sound waves over 85 dBA emitted at high intensity by welding equipment can lead to hearing loss. Noise has also been linked to headaches, stress, increased blood pressure, nervousness, and excitability. Welding noise is produced by the power source, the welding process, and by secondary activities such as grinding and hammering. Ear plugs or ear muffs must be worn when welding, cutting or grinding.

### Electric Shock

Electrical shock is the effect produced by current on the nervous system as it passes through the body. Electrical shock may cause violent muscular contractions, leading to falls and injuries. It may also have fatal effects on the heart and lungs. Electrical shock may occur as a result of improper grounding and/or contact with current through damp clothing or wet surfaces. Even if the shock itself is not fatal, the jolt may still cause welders to fall from their work positions.

Electrical burns are an additional hazard. The burns often occur below the skin surface and can damage muscle and nerve tissue. In severe cases, the results can be fatal. The extent of injury due to electrical shock depends on voltage and the body’s resistance to the current passing through it. Even low voltages used in arc welding can be dangerous under damp or humid conditions.


Welders should keep clothing, gloves, and boots dry and stay well insulated from work surfaces, the electrode, the electrode holder, and grounded surfaces.

### Chemical Hazards

Chlorinated solvents for degreasing, zinc chromate-based paint for anti-corrosion coatings, cadmium or chromium dusts from grinding, and welding fumes are all classified as chemical hazards.

Arc welders are at particular risk since the high temperatures generated by the arc can release heavy concentrations of airborne contaminants.

Chemical hazards may injure welders through inhalation, skin absorption, ingestion, or injection into the body. Damage to respiratory, digestive, nervous, and reproductive systems may result.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## Hot Work

Symptoms of overexposure to chemicals may include nosebleeds, headaches, nausea, fainting, and dizziness. The most common chemical hazards from welding are airborne contaminants:  
Fumes, Gases and Vapours and Dusts


### Fumes

Some of the metal melted at high temperatures during welding vaporizes. The metal vapour then oxidizes to form a metal oxide. When this vapour cools, suspended solid particles called fume particles are produced. Welding fumes consist primarily of suspended metal particles invisible to the naked eye. Metal fumes are the most common and the most serious health hazard to welders. Fume particles may reach deep into the lungs and cause damage to lung tissue or enter the bloodstream and travel to other parts of the body.

The following are some common welding fumes:

- Beryllium- is a hardening agent found in copper, magnesium, and aluminum alloys. Overexposure may cause metal fume fever. Lasting for 18–24 hours, the symptoms include fever, chills, coughing, dryness of mouth and throat, muscular pains, weakness, fatigue, nausea, vomiting, and headaches. Chronic exposure to beryllium fumes can result in respiratory disease. Symptoms may include coughing and shortness of breath. Beryllium is a suspected carcinogen.
- Cadmium coatings- can produce a high concentration of cadmium oxide fumes during welding. Cadmium-plated or cadmium-containing parts resemble, and are often mistaken for, galvanized metal. Overexposure to cadmium can cause metal fume fever. Symptoms include respiratory irritation, a sore, dry throat, and a metallic taste followed by cough, chest pain, and difficulty in breathing. Overexposure may also make fluid accumulate in the lungs and may cause death.
- Chromium- is found in many steel alloys. Known to be a skin sensitizer, it may cause skin rashes and skin ulcers with repeated exposure. Chromium also irritates mucous membranes in areas such as eyes and nose. Inhaled chromium may cause edema and bronchitis.
- Lead- can be found in lead-based paints and some metal alloys. Lead poisoning results from inhalation of lead fumes from these lead-based materials. The welding and cutting of lead or lead-coated materials is the primary source of lead poisoning for welders. Symptoms include loss of appetite, anemia, abdominal pains, and kidney and nerve damage.
- Nickel- is found in many steel alloys including stainless steel and monel. It is a sensitizing agent and in certain forms is toxic and carcinogenic. Nickel fumes can also produce cyanosis, delirium, and death 4 to 11 days after exposure.
- Zinc- is found in aluminum and magnesium alloys, brass, corrosion-resistant coatings such as galvanized metal, and brazing alloys. Inhaling zinc fumes during the cutting or welding of these metals may cause metal fume fever.

### Gases and Vapours

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## Hot Work

A gas is a low-density chemical compound that normally fills the space in which it is released. It has no physical shape or form. Vapour is a gas produced by evaporation. Several hazardous vapours and gases may be produced by welding.

Hydrogen fluoride (HF) gas- can be released by the decomposition of rod coatings during welding and irritates the eyes and respiratory system. Overexposure can injure lungs, kidney, liver, and bones.

Nitrogen oxide (NOx) gas- is released through a reaction of nitrogen and oxygen promoted by high heat and/or UV radiation. It is severely irritating to the mucous membranes and the eyes. High concentrations may produce coughing and chest pain. Accumulation of fluid in the lungs can occur several hours after exposure and may be fatal.

Ozone gas- is formed by the reaction of oxygen in air with the ultraviolet radiation from the welding arc. It may be a problem during gas-shielded metal arc welding in confined areas with poor ventilation. Overexposure can result in an accumulation of fluid in the lungs (pulmonary edema) which may be fatal.

Phosgene gas- is formed by the heating of chlorinated hydrocarbon degreasing agents. It is a severe lung irritant and overexposure may cause excess fluid in the lungs. Death may result from cardiac or respiratory arrest.

Phosphine or hydrogen phosphide- is produced when steel with a phosphate rustproofing coating is welded. High concentrations irritate eyes, nose, and skin.

Asphyxiants are chemicals that interfere with the body's ability to transfer oxygen to the tissues. The exposed individual suffocates because the bloodstream cannot supply enough oxygen for life.

There are two main classes of asphyxiants:

**Simple asphyxiants**- displace oxygen in air, thereby leaving little or none for breathing. In welding, simple asphyxiants include commonly used fuel and shielding gases such as acetylene, hydrogen, propane, argon, helium, and carbon dioxide. When the normal oxygen level of 21% drops to 16%, breathing as well as other problems begin, such as lightheadedness, buzzing in the ears, and rapid heartbeat.

**Chemical asphyxiants**- interfere with the body's ability to transport or use oxygen. Chemical asphyxiants can be produced by the flame cutting of metal surfaces coated, for instance, with rust inhibitors. Hydrogen cyanide, hydrogen sulphide, and carbon monoxide are examples of chemical asphyxiants—all highly toxic.

### Dusts


Dusts are fine particles of a solid that can remain suspended in air and are less than 10 micrometres in size. This means they can reach the lungs. Dusts may be produced by fluxes and rod coatings, which release phosphates, silicates, and silica. The most hazardous of these is silica which can produce silicosis.

### Fires and Explosions

There is always a threat of fire with welding. Fires may result from chemicals reacting with one another to form explosive or flammable mixtures.

In welding, oxygen and acetylene present the most common hazards of fire and explosion. Pure oxygen will not burn or explode but supports the combustion of other materials, causing them to burn much more rapidly than they would in air.

When exposed to high temperature, excess pressure, or mechanical shock, acetylene gas can undergo an explosive decomposition reaction.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## Hot Work

### Preventive Measures

Welding hazards must be recognized, evaluated, and controlled to prevent injury to personnel and damage to property.

Types and effects of airborne contaminants produced by welding depend on the working environment, the kind of welding being done, the material being welded, and the welder's posture and welding technique.

Base metal- is an important factor in the production of fumes, vapours, and gases. The base metal will vaporize and contribute to the fume.

Coatings- such as rust inhibitors have been known to cause increased fume levels which may contain toxic metals. All paints and coatings should be removed from areas to be welded as they can contribute to the amount and toxicity of the welding fume.

Welding rod- is responsible for up to 95% of the fume. Rods with the fewest toxic substances can't always be used because the chemistry of the rod must closely match that of the base metal.

Shielding gas- used can affect the contaminants produced. Using a mixture of argon and carbon dioxide instead of straight carbon dioxide has been found to reduce fume generation by up to 25%.

Welding process variables- can have a big effect on the fume levels produced. Generally, fume concentrations increase with higher current, larger rods, and longer arc length. Arc length should be kept as short as possible while still producing good welds.

### Ergonomics

Here are some tips for a good working posture while welding:


- Learn to recognize symptoms of work-related musculoskeletal disorders. Repeated uncomfortable postures and tasks can cause injury.
- Avoid awkward body positions which cause fatigue, reduce concentration and lead to poor welds which may need to be repeated.
- Always use your hand to lower your helmet. Do not use a "jerking" motion of your neck and head.
- Position yourself in a stable, comfortable posture.
- Avoid working in one position for long periods of time.
- Always store materials and tools within normal reach.

### Ventilation

Ventilation is required for all welding and cutting. Adequate ventilation is defined as:

- the use of air movement to reduce concentrations of airborne contaminants below the acceptable limits in the worker's breathing zone and the work area
- prevent the accumulation of combustible gases and vapours
- prevent oxygen-deficient or oxygen-enriched atmospheres.

Natural dilution ventilation — When using natural dilution ventilation, you must make sure to "keep your head out of the fume". A portable fan can also be used if necessary to keep fumes out of your work area.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	

## Hot Work

### Fire Prevention

Sparks and slag from welding, cutting and grinding can travel great distances and may contact flammable materials or electrical equipment. Fires have started in smoldering materials that went undetected for several hours after work was done. Take the following steps to prevent fires and explosions:

- Keep welding area free of flammable and explosive material
- Provide fire extinguishers suitable for potential types of fire. Know where the extinguishers are and how to use them
- Provide a firewatch where necessary—a worker to watch for fires for at least thirty minutes afterward

### Handling, Storing and Using Cylinders

#### Handling


- Do not accept or use any compressed gas cylinder which does not have proper identification of its contents
- Transport cylinders securely
- Protect cylinders and any related piping and fittings against damage
- Never drop cylinders or let them strike each other violently
- Chalk EMPTY or MT on cylinders that are empty
- Close valves and replace protective caps
- Secure transported cylinders to prevent movement or upset
- Always regard cylinders as full and handle accordingly

#### Storage

- Store cylinders upright in a safe, dry, well-ventilated location
- Never store flammable and combustible materials such as oil and gasoline in the same area
- Do not store cylinders near walkways, exits, or in places where they may be damaged or knocked over
- Do not store oxygen cylinders within 6 m (20 ft) of cylinders containing flammable gases unless they are separated by a partition at least 1.5 m (5 ft) high
- Store empty and full cylinders separately
- Prohibit smoking in the storage area

#### Using

- Open cylinder valves slowly. Only use the handwheel, spindle key, or special wrench provided by the supplier
- Always use a pressure-reducing regulator with compressed gases
- Before connecting a regulator to a cylinder, crack the cylinder valve slightly to remove any debris or dust that may be lodged in the opening
- Never allow sparks, molten metal, electric current, or excessive heat to come in contact with cylinders
- Never use oil or grease as a lubricant on the valves or attachments of oxygen cylinders
- Release pressure from the regulator before removing it from the cylinder valve
- When gas runs out, extinguish the flame and connect the hose to the new cylinder
- Purge the line before re-igniting the torch
- When work is finished, purge regulators, then turn them off. Use a proper handle or wrench to turn off cylinders.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Hot Work</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 8	


## Hot Work

Hoses and hose connections for oxygen and acetylene should be different colours. Red is generally used to identify the fuel gas and green the oxygen. Protect hoses from traffic, flying sparks, slag, and other damage. Avoid kinks and tangles. Repair leaks properly and immediately.

### REQUIREMENTS

- Industrial Regulations 851, Section 49, 127-128, 130



 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Defensive Driving</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## DEFENSIVE DRIVING

### PURPOSE

To ensure all drivers understand defensive driving techniques and highway traffic legislation and safe procedures.

### PROCEDURES

#### Driver Orientation

Orientation is part of employee training. The purpose of an orientation program is to familiarize new employees with their jobs and the company, including all policies and procedures. DBRMX will use an experienced driver to assist with the orientation of new drivers. New drivers will ride with those who are experienced for a given time period so they can observe and understand the specific procedures required including:

- Vehicle operation and safe driving
- Hours of service
- Vehicle maintenance
- Job site procedures and practices

#### Before you Drive

Make sure you are comfortable with your physical, mental and emotional state, your vehicle and the conditions in which you will be driving. If you have doubts about any of them, do not drive.


Your ability to drive can change from one day to the next. Illness, fatigue, prescription and over-the-counter drugs, stress and your mental or emotional state can greatly diminish your ability to operate a motor vehicle. You should consider these factors before you begin driving, and you should not operate a motor vehicle when you are not fit to do so.

- Don't drive when you are sick or injured.
- Don't drive when you have been drinking alcohol or taking any drug or medication that may reduce your ability to drive.
- Don't drive when you are tired. You might fall asleep at the wheel, risking the lives of others on the road. Even if you don't fall asleep, fatigue affects your driving ability. Your thinking slows down, and you miss seeing things. In an emergency, you may make the wrong decision, or you may not make the right decision fast enough.
- Don't drive when you are upset or angry. Strong emotions can reduce your ability to think and react quickly.

#### Defensive Driving

Driving is based on three ideas: visibility, space and communication.

- Visibility is about seeing and being seen. You should always be aware of traffic in front, behind and beside you.
- Managing the space around your vehicle lets you see and be seen and gives you time and space to avoid a collision. Because the greatest risk of a collision is in front of you, stay well back.
- Communicate with other road users to make sure they see you and know what you are doing. Make eye contact with pedestrians, cyclists and drivers at intersections and signal whenever you want to slow down, stop, turn or change lanes.
- Communicate with other road users to make sure they see you and know what you are doing. Make eye contact with pedestrians, cyclists and drivers at intersections and signal whenever you want to slow down, stop, turn or change lanes.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Defensive Driving</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## DEFENSIVE DRIVING

As a driver, a preventable crash is one in which you failed to exercise every reasonable precaution to prevent the crash. In general, to be a defensive driver, you need to:

- Assume other drivers will make errors.
- Keep the lights, mirrors, windows, and windshield of the vehicle clean.
- Adjust your vehicle's mirrors to assure maximum viewing area from your seating position.
- Adjust speed, position, direction, and attention to be able to maneuver safely if a hazard develops.
- Scan far enough ahead to be able to react safely to approaching situations.
- Scan frequently to the side and rear for passing or approaching vehicles.
- Tap your horn in congested areas to warn others you will be moving or use a signaller.
- Turn on the vehicle's flashers, day or night, if you pull off on the shoulder of the road or are forced to stop in a travel lane.
- When necessary, place emergency warning devices to alert other drivers that your vehicle is stopped.
- Drive according to weather conditions including reduced visibility, rain, snow, ice, loose road surfaces, and time of day.

### Negotiating Curves

While automobiles can lose traction and "slide out" of a curve at an excessive speed, commercial motor vehicles will tend to roll over. The more top heavy a vehicle is, the more likely that it will roll over rather than slide out of a curve.

To be a defensive driver, you should:

- Maintain speeds below the curve advisory speed.
- Reduce speed before entering a curve.
- Stay off the roadway shoulder in curves. The right- or left-side wheels may drop or sink down into a shoulder and increase the chance of a rollover.

### Downgrades

The main reason for loss of vehicle control on downgrades is brake failure resulting from the use of improper control techniques by the driver. To be a defensive driver in negotiating downgrades, you should:


- Know the gearing on your vehicle.
- Put the truck in the proper gear, and check brake function before descending long, steep grades.
- Use a lower gear if speed cannot be controlled with light (10-psi) brake pressure.
- Apply both cab and trailer brakes. Applying only trailer brakes could cause overheating and brake failure.

### Pedestrians

Most pedestrian accidents occur when the pedestrian walks onto a roadway and into the path of an approaching vehicle. Pedestrians often misjudge the speed and closeness of a commercial motor vehicle and assume a driver can and will slow down for them.

In addition, pedestrians think that because they can see the vehicle, the driver can see them. They often walk or stand in the blind spots in front of and to the right of a vehicle. To be a defensive driver when interacting with pedestrians, you should:

- Scan around the vehicle thoroughly when pedestrians are present
- Adjust your driving speed accordingly.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Defensive Driving</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## DEFENSIVE DRIVING

- Assume that a pedestrian will not give you the right-of-way until it is obvious the pedestrian is waiting for the vehicle to pass.
- Be extra careful at night in pedestrian areas, as pedestrians may assume you can see them because they can see the vehicle headlights so easily.

### Emergency Situations

Having emergency equipment available in the vehicle will greatly assist a driver in emergencies. To be a defensive driver when handling emergencies, you should:

- Inspect the vehicle prior to operation to assure that all emergency equipment is in place.
- Turn on emergency flashers and place emergency warning devices immediately after the vehicle stops.
- Try to coast off the travel lane, if safe to do so
- Try to extinguish a fire only if you have been trained in correctly operating the fire extinguisher and it does not put you in danger.

## REQUIREMENTS

### Ontario Legislation

All drivers, vehicles, and roadways within the province of Ontario fall under the Highway Traffic Act (HTA) and its related regulations. The regulations that primarily affect commercial vehicle operators include:

HTA Regulation 199/07 – Commercial Motor Vehicle Inspections

HTA Regulation 424/97 Commercial Motor Vehicle Operators' Information

HTA Regulation 577 – Covering of Loads

HTA Regulation 512/97 – Critical Defects of Commercial Motor Vehicle

HTA Regulation 340/94 – Drivers' Licences

HTA Regulation 587 – Equipment (Includes Speed Limiters)


HTA Regulation 596 – General

HTA Regulation 555/06 – Hours of Service

HTA Regulation 601 – Motor Vehicle Inspection Stations

HTA Regulation 611 – Safety Inspections (Includes On-Road Standards)

HTA Regulation 363/04 – Security of Loads

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Pit and Plant Traffic Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## PIT AND PLANT TRAFFIC SAFETY

### PURPOSE

To ensure all employees understand vehicle and pedestrian traffic policies in the pit and at the plant.

### SCOPE

#### **Pit Traffic, Roadways, and Traveled Areas**

- Roads must be regularly maintained to be free of washouts and major potholes.
- Roads must be maintained to minimize hazards from slipping or skidding of vehicles.
- Roadways must enable vehicles to pass each other safely and;
- Roads must avoid steep grades wherever practical

#### **Illumination**

The plant building and employee parking areas will have outdoor artificial lighting to provide illumination in the early morning or evening hours.

#### **Traffic Management Regulations**

An employer at a mine shall, in consultation with the joint health and safety committee or health and safety representative, develop and maintain a written traffic management program.

The program shall include measures and procedures to,


- a) prevent collisions, of motor vehicles, that may endanger the health and safety of workers by addressing hazards relating to reduced or impeded visibility of motor vehicle operators; and
- b) protect the health and safety of workers and pedestrians who may be endangered by the movement of a motor vehicle.
- c) A copy of the program shall be provided to the joint health and safety committee or health and safety representative and shall be kept readily available at the mine site.
- d) The program shall be reviewed at least annually.
- e) The Traffic Management Program, including the Risk Assessment Checklist, Traffic Plan and Site Map will be posted in the plant office.

#### **Pit Traffic Safety**

- All vehicles must adhere to the posted speed limits and warning signs.
- Vertical drops, road edges, cliffs or accesses to deep water must be protected by berms of half the height of the largest tires in operation in the pit.
- Right of way is given to loaded vehicles and larger equipment when working or traveling in a pit. This is because of equipment blind spots and loaded vehicles require greater distances to stop than unloaded vehicles.
- Dust control measures shall be taken on roadways as necessary.

#### **Pedestrians, Visitors and the General Public**

- All visitors, customers must report to the plant office when they arrive.
- Parking is designated for light vehicles on the north side of the plant.
- Pedestrians must be aware of truck traffic when walking around the plant and near roadways.
- Proper PPE must be used in designated areas.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Pit and Plant Traffic Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## PIT AND PLANT TRAFFIC SAFETY

- Visitors must be escorted by a DBRMX employee while in the pit or visiting the plant property.
- The speed limit on plant property is 20 KM/H.
- Please follow the designated haul and traffic routes. A map will be posted in the plant office.
- Signs will be posted to warn of restricted areas.

### Plant Entrance Gate Procedure

The last driver leaving the plant yard at the end of the day is required to lock up the plant and entrance gate. A board will be posted in the plant office that shows the drivers working that shift, and whether or not they have finished and left for the day. Driver's must check the board and, if they are the last one to leave, they must turn off the lights, secure the building, close the four overhead garage doors on the plant and lock the entrance gate.

### Dump Truck Operation

Dump trucks and dump trailers can and have tipped over when their boxes were lifted. The result can be serious injury or death to the driver and/or nearby workers. Serious vehicle and property damage can also occur.

#### Factors that can cause the truck or box to tip over:

- slightly sloping or uneven ground level
- material that gets stuck in the box causing an imbalance
- large portion of loads caught in tailgates
- soft ground under tires
- mechanical defects

## PROCEDURES

DBRMX will typically receive aggregate materials from suppliers delivering to the plant.

All trucks delivering material should follow these procedures:

#### Unloading:

- When material is dumped from a vehicle, the dump point shall include features (i.e. berms, barriers) to prevent the vehicle from going over the bank or edge.
- When dumping on top of a fill dump or stockpile, ensure the unloaded material will not become a hazard for any workers, vehicles that may be located at the bottom of the slope.
- When reversing, truck drivers must be mindful of any pedestrians or other traffic. Use a signaler if necessary.
- Drivers must always visually inspect the area above them for overhead wires or other hazards.
- Trucks must be level enough to dump safely. While raising the box, maintain a good centre of gravity. If you suspect the box is off centre, immediately lower the box and re-position the truck.
- Stay in the cab during dumping and keep your seatbelt on. You're less likely to be injured in a rollover. If the truck starts to tip DON'T TRY TO JUMP OUT.
- Always try to lower the box as soon as the load has been dumped. This lowers the centre of gravity.
- Check the box periodically to ensure all loads are emptying properly. Clean out as needed.
- Check box when dumping sticky material like clay. It may stick to one side of the raised box or it may stick in the upper portion, creating a top-heavy or unbalanced load.



**DUTCH BROTHERS  
HEALTH, SAFETY &  
ENVIRONMENTAL PROGRAM**

## **Section: Pit and Plant Traffic Safety**

PREPARED BY: HEALTH AND SAFETY TEAM

DATE OF ORIGIN: 02/02/2023

REVISION # 1

# OF PAGES: 3


### **PIT AND PLANT TRAFFIC SAFETY**

- Be aware of frozen loads that may become stuck in the box.
- Report all mechanical issues. Stability can be affected by poor suspension, uneven tire pressure, and worn or inadequate lifting systems.
- Ensure that the tailgate locks work properly.
- Ground workers should always wear high-visibility clothing or safety vests. Make eye contact with the driver when approaching.
- Never stand, work or use machinery beside a truck or trailer when it is dumping. Be visible and stay out of the danger zone.

### **REQUIREMENTS**

#### **Ontario Legislation**

- Mining Regs. 854, Sections 18, 90-92, 105.1, 116, 118

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Construction Projects</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 2	

## CONSTRUCTION PROJECTS

### PURPOSE

Drivers are subject to other legislated regulations at different locations. Primarily the construction regulations must be followed when working at project sites.

### SCOPE

#### Electrical Hazards- Construction Projects

An electrical hazard can be defined as:

- a dangerous condition where a worker could make electrical contact with energized equipment or a conductor, and from which the person may sustain an injury from shock and/or;
- there is potential for the worker to receive an arc flash burn, thermal burn, or blast injury.

Where appropriate a set of written procedures shall be available on the project to ensure that no part of a vehicle or equipment or its load encroaches on the minimum distance permitted (see table and procedure below).


**No equipment or vehicle shall be brought closer to overhead electrical wires set out in the following table.**  
**Section 188(2) of the OHSA Regulations for Construction Projects.**

Nominal Phase to Phase Voltage Rating	Minimum Distance
750 or more volts, but no more than 150,000 volts	3 meters
More than 150,000 volts, but no more than 250,000 volts	4.5 meters
More than 250,000 volts	6 meters

### PROCEDURES

If a piece of equipment or vehicle may have the potential of encroaching the minimum allowable distance to an overhead wire, the following procedures are required:

- Arrange for a competent signaller to assist the operator/driver.
- Notify the operator/driver (in writing on plan) of the electrical hazard before work starts
- Provide enough warning devices / signs in the vicinity of the hazard so at least one is always visible to warn the operator/driver.
- Ensure a sign or sticker is visible at the operator's station (i.e. cab) warning of the hazard.
- Provide copies of the written procedures to the operator/driver.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Construction Projects</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 2	

## CONSTRUCTION PROJECTS

### Signallers- Construction Projects

A signaller is a worker who assists the operator of a vehicle, machine, equipment, backhoe, crane or similar excavating machines and hoisting devices.

Signallers are used for several tasks on projects which include:

- reversing equipment or vehicles
- traffic control

### Procedures

Operators and/or drivers shall be assisted by a signaller if either one of the following applies:

- The operator's view of the intended path of travel is obstructed or;
- A person could be endangered by the vehicle, machine, or equipment or by its load

### Operator and driver responsibilities

Operators and truck drivers must follow direction from a signaller when required. The onus is on the operator or driver to request the signaller if it is required and the project supervisor has not provided.


1. Do not proceed until a signaller is assigned.
2. The operator, driver and signaller shall use jointly established procedures;
3. Signs should be posted to warn workers of reversing equipment

## REQUIREMENTS

### Ontario Legislation

- Construction Regs. 213, Sections 106, 186-187



 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Stockpile and Pit Face Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## STOCKPILE AND PIT FACE SAFETY

### PURPOSE

All workers must understand the hazards and risks of working around stockpiles and pit faces and the procedures used to control those hazards.

### SCOPE


**All work must meet the requirements of the Occupational Health and Safety Act and Regulation 854 Mines and Mining Plants.**

#### General Rules

- Stockpiles shall be inspected for hazardous conditions regularly by a competent person.
- Stockpiles shall be made safe before an operator/machine is allowed to work close to or on top of the stockpile.
- The top of a stockpile shall be graded to promote surface runoff and no ponding of water shall be allowed on top of the pile.
- When removing earth, clay, sand or gravel by means of powered equipment:
- The working face shall be sloped at the angle of repose; or
- The vertical height of the working face shall not be more than 1.5 metres above the maximum reach of the equipment.
- Stockpiles in safe zones must not be higher than 3 metres.
- Persons on foot must maintain a distance no less than the height of a working or vertical pit face. A minimum of a 1:1 relationship between height of face to distance to the base must be maintained.
- Persons on foot at the top of a pit face must maintain a distance greater than 3 metres from the edge. If cracks on the surface are seen; then stay 3 metres from the crack.
- There shall be no access of heavy equipment within 2 metres of the crest of a slope unless the loose material has been pushed and compacted with a bucket. On a slope that has an overall profile steeper than the angle of repose, the crest of the pile shall be excavated in benches using an excavator or equivalent.
- Material must be dumped back from the edge of a pile or face. Material should be pushed by a machine using a “bumper” of material in front of the machine at the edge.
- Berms of appropriate height should be used to protect the edges of piles or pit faces in traveled areas. The height of the berm must be a minimum of the radius of the largest wheel in the pit.
- Trees and other vegetation or materials within 2 metres of the rim of a surface mine and likely to endanger a person, must be removed.
- Overhangs, undercutting or tunneling of material both in a stockpile or pit face is not permitted.

#### Stockpile Characteristics

- Processed granular material is usually placed in a stockpile by conveyors or by carrying the material by bucket or truck. Stockpiles created by these methods from materials found in our pits will typically have a slope at its edges (“Angle of Repose”) of about 30 to 37 degrees. This angle of repose is the natural state at which the material falls and conforms to. When loading out of a stockpile the angle of repose and the natural state of the granular material no longer exists.

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Stockpile and Pit Face Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## STOCKPILE AND PIT FACE SAFETY


- In dry warm conditions granular material found in our pits will generally act more free-flowing and the material will continually fall towards its angle of repose. This falling of material is not instantaneous though and can happen at any moment.
- In the winter and in wet conditions materials found in our pits will freeze or stick and not naturally fall to their angle of repose. Overhangs may occur in these situations which are unsafe.
- Regardless of weather conditions some materials will not free flow to their angle of repose. These materials possess an inherent stickiness property and will form overhangs even in the summer. Examples are recycled asphalt and concrete.
- When external forces are placed upon a stockpile its contents may shift because of them. A good example of this is when weight from a piece of machinery is placed on top of the pile near the tipping edge. The weight placed on the stockpile can cause the material to fall to a new angle of repose. The effects of this can cause the piece of equipment to fall with the material supporting its weight. This can be unsafe.

### Stockpile Mining Safety Rules

- Stockpiles shall be excavated in such a manner so as not to result in a concave working face on a horizontal plane.
- Loaders must excavate a stockpile at right angles. Loading shall be uniform along the entire working face.
- Trucks must not dump at the top of the pile where the toe (bottom) has been removed.
- Samples must not be taken from a stockpile by hand unless it is in complete repose and no other activity is being performed on the pile. (i.e. Machines traveling on top of the pile). The preferred method of sampling is to use a loader and create a sampling platform less than 1 metre high and in a safe location away from the working face of the stockpile.

### PROCEDURE

- Overhangs and vertical cut faces in stockpiles are potential hazards. Their stability can be reduced by wet conditions caused by precipitation and snow melt.
- If an overhang develops an unsafe condition occurs. The overhang must be dealt with before any further loading or excavating can occur. If the loader can reach the overhang, then the operator must knock down the overhang before continuing.
- If the overhang cannot be removed safely by the mining equipment, then it must be protected from access using berms and/or safety barrels and signage. The operator must also notify their supervisor of the unsafe condition.
- Removing an overhang that cannot be managed by a loader can be performed by a hydraulic excavator. The operator of the excavator must be trained in managing overhangs. When knocking down the overhang the excavator must never be positioned in the falling path of the overhanging material. The preferred method of knocking down an overhang is to excavate behind the overhang from on top of the pile.
- The stockpile may be excavated in benches each not exceeding the allowable height of the vertical face.
- The loader operator can load from another safe area of the stockpile if an overhang exists on one side. Try to load from the side of the stockpile which has the greatest exposure to the south.
- If because of the material type or season, the stockpile is becoming prone to overhangs, it must be stockpiled no higher than the maximum reach height of the machine mining out of it. i.e. A 980H Cat loader will reach

 <b>DUTCH BROTHERS</b> <b>HEALTH, SAFETY &amp;</b> <b>ENVIRONMENTAL PROGRAM</b>	<b>Section: Stockpile and Pit Face Safety</b>		
	PREPARED BY: HEALTH AND SAFETY TEAM	DATE OF ORIGIN: 02/02/2023	REVISION # 1
		# OF PAGES: 3	

## STOCKPILE AND PIT FACE SAFETY

6.36m in height. A 980H loader cannot mine a pile greater than 6.36m that is prone to overhangs. The reason for this is that the loader operator can manage the overhang themselves if it occurs.

- In the event that the stockpile height exceeds the vertical reach of the equipment and there is a likelihood that overhangs will occur, the excavation shall proceed in benches beginning from the upper part of the pile.
- Since in the winter all materials in our pits are susceptible to overhangs, stockpiles will be constructed with a “winter loading face” which consists of material piled no higher than the reach of the machines loading out of it. A part of or the entire stockpile can be constructed with a winter loading face. Construction of winter stockpiles should be attempted in the fall season before frost sets in.
- If space is limited more than one lift/bench can be constructed when creating the winter stockpile. Ramps double the width of the loader and at a slope of 1:10 should be constructed to reach the upper bench levels. Large enough loading and turn around areas must also be constructed with safety berms at their edges. Bench heights are determined by the maximum reach of the machine used to load material out of the stockpile.

### REQUIREMENTS

- Mining Regs. 854, Sections 61, 88