

Table of Contents

Section 1:	Introduction.....	2
Section 2:	Policies and Statements.....	3
Section 3:	Safety Responsibilities	12
Section 4:	Legislative Requirements	25
Section 5:	HSE Committee and Safety Meeting Requirements.....	35
Section 6:	Hazard Identification and Control.....	44
Section 7:	Occupational Health, Safety, & Environmental Programs and Safe Work Guidelines	54
Section 8:	Incident Management	154
Section 9:	Safe Work Practices, Procedures & Standards	161
Section 10:	Emergency Preparedness and Response.....	238
Section 11:	Training.....	260
Section 12:	Vehicle and Road Safety Management.....	266
Section 13:	Records and Statistics	273
Section 14:	Environmental Management, Dangerous Goods, Chemical and Biological Hazards and Harmful Substances.....	279
Section 15:	Forms	299
Section 16:	Glossary	300

Section I: INTRODUCTION

I.1 ABOUT THIS MANUAL

Welcome to Surerus.

The Surerus Pipeline Inc. (Surerus) Health Safety and Environment (HSE) Program is based on the conviction that all workplace injuries and illnesses can be prevented by identifying hazards and implementing controls to help eliminate unsafe acts and unsafe conditions.

This Health, Safety and Environment (HSE) manual has been produced with consideration from the applicable regulatory bodies and agencies, management, and employee input. It has been prepared with the expectation that all employees who follow the Surerus safe work guidelines and programs will enjoy a safe work environment.

References to mandatory minimum requirements in this manual are supplementary to and, in some cases, may be over and above existing federal, provincial and local occupational health and safety rules and regulations.

All Surerus employees and affiliated sub-contractors, suppliers and visitors are subject to this company's HSE Program and safe work practices when working directly for Surerus, and are expected to take a proactive approach to HSE practices and issues.

When all Surerus employees work together safely as a team, all Surerus projects should be safe and productive.

Thank you for helping Surerus maintain its excellent reputation in health, safety and environmental matters.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Surerus", with a stylized flourish at the end.

Brian Surerus
President

Surerus Construction & Development Ltd.
Surerus Pipeline Inc.

Section 2: POLICIES AND STATEMENTS

Table of Contents

2.1	Corporate Health, Safety & Environment Policy	4
2.2	Industry Guiding Principles.....	5
2.3	Company Vehicle Policy	6
2.4	Discipline Policy	6
2.5	Investigation Policy.....	7
2.6	Modified Work Policy	7
2.7	Personal Protective Equipment Policy.....	7
2.8	Substance Abuse Policy.....	8
2.9	Contractor and Sub-contractor Hiring Statement.....	8
2.10	Due Diligence Statement	9
2.11	Harassment and Violence Policy	9

2.1 CORPORATE HEALTH, SAFETY & ENVIRONMENT POLICY

This company takes a proactive approach in its occupational Health, Safety & Environment (HSE) Program and is committed to fostering a safe and productive workplace.

Surerus' corporate policies are an integral part of the company's work; they protect our employees, clients, property, the environment and the public. These policies, and the degree to which they are followed, are what keep the business viable and its workers employed. Protecting our employees means we are also protecting their friends, families, fellow workers, management, the public and the environment from the far-reaching effects of serious accidents caused by unsafe work practices or conditions.

Employees, sub-contractors and visitors who knowingly violate safety rules will face disciplinary action, dismissal and/or legal action. Surerus may face legal action, fines or sanctions for violations of regulatory requirements; therefore, those individuals who do not fulfill their responsibilities under the company's Health, Safety and Environment Program will become accountable for any issues resulting from their negligence, and may also be legally liable. Everyone employed by Surerus should be familiar with the regulatory bodies and agencies governing our industry, and for maintaining the safety program.

Managers and supervisors are responsible for identifying, communicating and/or investigating hazards and incidents. They ensure that employees are trained, that they use the appropriate personal protective equipment, and that it is properly maintained and meets safety standards.

All employees must support supervisory personnel with their input and participation in the safety program. Everyone on the worksite is responsible for obeying safety rules, following safe work procedures, wearing personal protective equipment, attending safety meetings, participating in training programs and refusing to do work when unsafe conditions exist.

In addition to protecting lives, our program contributes to employee morale and pride. All employees will participate in identifying safety needs and developing safe work procedures. By fulfilling our safety responsibilities, everyone who works for this company will share the benefits of a safe workplace.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Surerus", with a stylized flourish at the end.

Brian Surerus
President

Dated: June 21, 2009

Surerus Construction & Development Ltd., Surerus Pipeline Inc.

2.2 INDUSTRY GUIDING PRINCIPLES

As members of the petroleum industry, we are responsible for protecting all our workers from personal injury and health hazards and will operate under the following guiding principles.

- **Responsibility**

The operating company, when acting as the primary contractor, is responsible for coordinating and supervising all activities at the worksite, including activities carried out by contractors, sub-contractors, service companies and suppliers. While all parties are responsible for promoting worker safety, the operating company recognizes its leadership role in promoting health and safety on the basis that it has the greatest power to influence worksite situations. Both workers and employers are responsible for refusing to perform unsafe work.

Priority

Activities will be conducted on the basis that safety of all personnel is of vital importance, whether those personnel are employed by an operating company, contractor, sub-contractor, service company or supplier.

Recognition

The process of selecting contractors, sub-contractors, service companies and suppliers, and the administration of contracts, will include recognition of and support for good safety performance. Employers will also provide recognition based on good safety performance to their employees.

Improvement

The operating company, in cooperation with service companies within the industry, will promote methods and practices that can improve safety performance. These companies include:

- Bridgespan Industries Inc.
- Canadian Association of Petroleum Producers
- Canadian Association of Geophysical Contractors
- Canadian Association of Oil Well Drilling Contractors
- Canadian Energy Pipeline Association
- Key Pile Construction Ltd.
- Petroleum Services Association of Canada
- Small Explorers and Producers Association of Canada
- Surerus Construction & Development Ltd.
- Surerus Pipeline Inc.

2.3 COMPANY VEHICLE POLICY

All vehicles must be signed out by authorized personnel.

Vehicles taken without proper authorization will be reported to the police as a stolen vehicle.

Signed-out vehicles that are found parked at an alcohol-primary establishment will be towed away at the driver's expense, and a safety infraction will be issued to the driver.

Driving a company vehicle after consuming drugs or alcohol or while impaired for any reason is cause for immediate dismissal.

Employees found or reported driving in a reckless or careless manner will be issued a safety infraction and, depending on the severity of the incident, may face dismissal.

Employees must not use handheld cell phones while operating a motor vehicle. All cell phone use, including hands-free, is prohibited (where required) while driving on customer/client property.

Employees are responsible for the care and cleanliness of all vehicles assigned to them.

Note: Use of a company vehicle is a privilege, not a right. Respect this privilege and everyone will benefit; abuse it and the privilege will be revoked.

2.4 DISCIPLINE POLICY

All employees are responsible for contributing to workplace safety. Each employee is therefore obligated, to the best of his or her ability, to protect themselves and fellow workers from harm at all times.

Failure to follow the proper policies or procedures will be viewed as a wilful disregard for this responsibility, and the employee may be subject to discipline.

Employees who do not comply with any policies, practices, procedures, rules or regulations outlined in the occupational Health, Safety & Environment Program will be subject to disciplinary action.

ENVIRONMENTAL POLICY

Surerus Pipeline Inc. (Surerus) believes in being proactive towards environmental issues and concerns. All employees will attend or be made aware of the client's environmental orientation.

Surerus will use good stewardship and best practices in clearing activities, handling soil, working near watercourses and wetlands and working near private land.

In addition, Surerus will follow all applicable provincial, federal and industry guidelines and regulations with the goal of protecting the environment and heritage resources.

2.5 INVESTIGATION POLICY

It is Surerus policy to have all incidents that result in injury or property damage, or that could have resulted in serious injury or property damages (near-misses), thoroughly investigated.

The purpose of these investigations shall be to determine the cause(s) of the incident so that appropriate action can be taken to prevent recurrence.

The project manager is responsible for ensuring that the appropriate personnel conduct these investigations and submit any necessary reports.

The project manager will review all recommendations and implement the appropriate measures to prevent recurrence. Incidents will be investigated and documented according to the incident management process outlined in this manual.

2.6 MODIFIED WORK POLICY

Surerus will make every reasonable effort to provide suitable employment on a temporary basis to any employee unable to perform his or her regular duties due to a workplace injury. This may include a modification of the employee's original position or providing an alternate role, depending on the employee's medical restrictions.

Positions considered for the modified work program must be meaningful and productive, and the jobs must comply with current WorkSafe BC guidelines.

All employees, regardless of injury or illness, will be considered for placement in modified work.

2.7 PERSONAL PROTECTIVE EQUIPMENT POLICY

Surerus policy is that all workers use the proper personal protective equipment (PPE) when and where required. All company-supplied PPE will conform to the appropriate governmental regulations and will be used and maintained in accordance with the manufacturer's guidelines.

All employees will wear as a minimum:

- CSA-approved eyewear (CSA-Z87)

- CSA-approved footwear (green triangle)
- CSA-approved head protection
- Tight-weave cotton long-sleeved shirts and long pants; nylon and other materials that can melt are not acceptable
- Where applicable, CSA-approved fire-retardant work wear will be worn to protect against the effects of flash fire
- Where applicable, appropriate gloves will be worn to protect against sharp edges and pinching fingers or skin

Outer work clothing shall be free of holes and ragged edges. Safety boots shall be kept in good shape and replaced when necessary. Clothing in sub-standard conditions can cause a potential hazard to oneself and others.

Additional PPE may be required for specific projects.

2.8 SUBSTANCE ABUSE POLICY

The objective of this policy is to eliminate the risk of impaired performance due to substance use within the company's operations.

The use of illicit drugs and the inappropriate use of alcohol and medications can impact an employee's health, safety and job performance, and can place the integrity and safety of Surerus facilities at risk.

All Surerus employees and contractors engaged in company business or working on company premises (defined as any land, building, or part thereof owned, leased or occupied by the company and any motor vehicle or container, owned, leased, rented or used by the company or any private motor vehicle used in the course of company business) must be fit to perform their duties. A workplace where job performance is affected by the use of alcohol or drugs is unacceptable.

*** B.C. human rights legislation regarding substance abuse is currently under review and may be subject to changes; Surerus will modify its substance abuse policy in accordance with any necessary regulatory changes.

2.9 CONTRACTOR AND SUB-CONTRACTOR HIRING STATEMENT

Surerus strives to employ contractors and sub-contractors who conduct their activities in a manner consistent with the industry's occupational health, safety, and environmental standards.

Contractors and sub-contractors should have a current Certificate of Recognition (COR) from a recognized body. The expectations for contractors and sub-contractors are identified in this manual and must be followed.

Nothing contained in this guideline shall be interpreted to expand the legal duty of Surerus to the contractor, their agents, employees or sub-contractors. This guideline will be administered by each project through its line management.

2.10 DUE DILIGENCE STATEMENT

Showing due diligence, or doing everything reasonable to be safe on the job, is fundamental to Surerus' occupational Health, Safety & Environment Program.

All employees, contractors and sub-contractors are expected to follow the safety procedures outlined in this manual; however, if an individual knows of a safer way to do a job he or she is responsible for using it.

Individuals can be found legally liable for a workplace accident if they cannot prove they did everything reasonable to prevent the incident or to do the work safely. Those who have shown a history of not complying with government safety inspection reports, and written orders to comply, can be found automatically guilty if they are charged with a similar, subsequent offence.

2.11 HARASSMENT AND VIOLENCE POLICY

Violence

The definition of "violence" means the attempted or actual exercise by a person of any physical force so as to cause injury to a worker, and includes any threatening statement or behaviour which gives a worker reasonable cause to believe that he or she is at risk of injury.

Violence in the workplace, which is deemed to include travel to and from the worksite as well as at job accommodations (camp, motel, hotel, etc.) will not be tolerated, and shall be cause for immediate dismissal, and may be subject also to immediate referral to law enforcement officials for further investigation and disposition.

Improper activity or behaviour includes the attempted or actual exercise by a worker towards another worker using physical force to cause injury, and including any threatening statement or behaviour that gives the worker reasonable cause to believe he or she is at risk of injury. Horseplay, practical jokes, unnecessary running or jumping or similar conduct will not be tolerated in the workplace.

A person must not engage in any improper activity or behaviour at a Surerus workplace that might create or constitute a hazard to themselves or to any other person.

Each supervisor must ensure that workers are instructed in how to recognize workplace violence, the policy, procedures and workplace arrangements that effectively minimize or eliminate workplace violence, and the appropriate response to workplace violence, including how to obtain assistance and procedures for reporting, investigating and documenting incidents of workplace violence.

If a worker is involved in workplace violence the worker is advised to consult a health professional for treatment or referral.

Any and all improper activities will be promptly investigated by Surerus management.

Each worksite will be evaluated according to the hazard assessment process considering violence as a workplace hazard.

This will be performed by the HSE Manager or site superintendent or designate.

Harassment

Harassment can come in different forms including, but not limited to, personal or sexual harassment.

Harassment includes conduct that unreasonably interferes with a person's work performance or creates a hostile, intimidating, or offensive work environment. Specific examples of harassment may include, but are not limited to, written or verbal abuse or threats and racial, religious or ethnic slurs.

Harassment does not include actions associated with exercising, in good faith, Surerus' managerial or supervisory rights and responsibilities.

Sexual harassment is a serious form of personal harassment. It is deliberate and unsolicited, and generally takes the form of unwelcome and offensive sexual comments, gestures, or physical contact on a one-time basis or in a series of incidents.

Examples of sexual harassment may include, but are not limited to:

- A person in authority asking an employee for sexual favours in return for being hired or receiving promotions or other employment benefits.
- Sexual advances with actual or implied work-related consequences.
- Unwanted physical contact such as touching, patting, pinching, hugging.
- Physical assault of a sexual nature.

This definition of sexual harassment is not meant to inhibit interactions or relationships based on mutual consent or normal social contact between employees.

Similarly, sexual harassment is not the accepted social banter that often occurs in the work environment, nor is it related to flirtation or a relationship between two consenting persons.

These relationships are considered consensual, based on mutual attraction and no intimidation is involved or extended. Sexual harassment is coercive, one-sided, and both males and females can be victims of it.

Harassment, whether personal, sexual or otherwise, will not be tolerated or condoned, and may lead to immediate discipline.

Any and all violence or harassment allegations must be investigated by Surerus management.

Section 3: SAFETY RESPONSIBILITIES

Table of Contents

3.1	Management Responsibilities	13
3.1.1	Commitment	13
3.1.2	Workplace Safety	14
3.2	Foremen Responsibilities	15
3.2.1	Commitment	15
3.2.2	Hazard Identification and Control	15
3.2.3	Worker Performance	15
3.2.4	Incidents	16
3.3	Supervisor and Superintendent Responsibilities	17
3.3.1	Commitment	17
3.3.2	Workplace Safety	17
3.3.3	Hazard Identification and Control	17
3.3.4	Worker Performance	17
3.3.5	Serious and Fatal Incidents	18
3.4	HSE Manager Responsibilities	19
3.5	First Aid Attendant Responsibilities.....	21
3.6	Contractor and Subcontractor Responsibilities	22
3.7	Employee Responsibilities	23
3.8	Visitor Responsibilities	24

3.1 MANAGEMENT RESPONSIBILITIES

3.1.1 Commitment

Management will ensure that fault-finding will not be associated with incident, accident and near-miss reporting systems. They will encourage all employees to participate in reporting, and will conduct periodic reviews of each supervisor to determine if good reporting is taking place.

Supervisors with a high number of incident reports will be commended, while those who show little or no reporting will be reprimanded for a lack of initiative in promoting incident reporting. Management will ensure that all major vehicle, lost time accidents and fatalities are investigated. When practical, they will be involved with the investigation.

Management will demonstrate its commitment to safety and will support internal company training by being present to start the session. In addition, management will observe the following schedule regarding safety responsibilities.

Quarterly

- Communicate the importance of safety in the workplace through letters or memos.
- Ensure the company safety policy is distributed and communicated through training programs, manuals, orientation and in safety meetings. During planning sessions, each decision should be reviewed to ensure the intent of this policy has been satisfied.
- Conduct formal safety inspections of the worksite using a check list that is retained on file.

Monthly

- Review the safety management system to ensure that all areas of the program are being addressed and functioning properly. This review will concentrate on supervisor and HSE Manager performance, status of reporting, and review of employee competency records.

Semi-annually (or upon job completion)

- Ensure that measurable safety responsibilities are developed for each work discipline.
- Work with employees to develop and measure their responsibilities.

Annually

- Communicate their commitment to safety and its importance at safety meetings, company functions or general gathering of employees.

3.1.2 Workplace Safety

Surerus is responsible for ensuring all reasonable measures are taken to provide the safest possible workplace for its employees through the following practices.

- Insist on safe performance throughout operations by ensuring contractors and employees are able to do their work properly.
- Have an effective safety program to prevent workplace accidents.
- Ensure the safety program and operations comply with contractual and regulatory requirements.
- Apply, where appropriate, the standards and practices that meet or exceed legal and regulatory requirements.
- Ensure contractors and employees know the operating company's expectations, rules and regulations.
- Provide sufficient time for contractors and employees to do their jobs properly.
- Hire employees and contractors that have good safety records, and provide leadership and direction to ensure safety and prevent accidents.
- Ensure that managers provide adequate funding for safety-oriented programs, education, training and equipment.
- Apply proper management control through safety audits to ensure compliance with policies, procedures and regulatory requirements.
- Ensure that the structure and operation of the health and safety committee is satisfactory.
- Communicate any workplace violence policies and/or workplace violence hazards related to any Surerus workers on a jobsite.

3.2 FOREMEN RESPONSIBILITIES

3.2.1 Commitment

- Maintain a daily diary to record safety and production activities.
- Review the company safety program and its benefits with all workers new to the company or new to a job.
- Review job descriptions and describe to workers their specific safety responsibilities.
- Inform workers of their responsibility to refuse to work under unsafe conditions.
- Question workers for their knowledge of the safety program, their safety responsibilities and job description.
- Explain to workers the penalties for violating regulatory requirements and company safety policies.
- Review with workers all applicable safety rules, standard work procedures and emergency procedures.
- Conduct daily tailgate safety meetings and record minutes.
- Perform Field Level Hazard Assessments and share with employees.
- Send copies of meeting minutes to the company head office.

3.2.2 Hazard Identification and Control

- Conduct ongoing inspection of worksites for hazardous conditions and compliance with regulatory and owner requirements.
- Participate in formal jobsite inspections.
- remove or correct hazardous conditions.
- Ensure that critical and/or safe work procedures prepared by the company are followed, including special tailgate meetings, along with documentation prior to commencement of critical or special work.
- Mark remaining hazards and notify workers of the hazard type, location and the protection required.
- Whenever necessary, contact company safety personnel to help control hazards.
- Establish equipment inspection and maintenance procedures as well as schedules and verify that hoisting equipment, including side booms, are inspected daily and recorded in the equipment log book.
- Rotate crews to ensure stress and fatigue do not contribute to worksite hazards.
- Stop work if it becomes unsafe.

3.2.3 Worker Performance

- Ensure employees work safely and follow standard work procedures.

- Point out and correct unsafe work practices as soon as they are noticed.
- Set an example by working safely and following standard work procedures.
- Recognize workers for using safe work procedures.
- Encourage workers to provide input into safety program development and maintenance.
- Ensure workers report every incident and accident.

3.2.4 Incidents

- Obtain medical aid immediately if required.
- Shut down operations and clear the area if an accident causes or could cause serious injuries, equipment damage or interfere with rescue and first aid efforts.
- Secure all accident scenes, record names of witnesses, document accident details and ensure immediate supervisor and site safety coordinator are notified, and assist with the investigation as required.
- Record and report all incidents and accidents and comply with regulatory requirements.
- Cooperate with company safety representatives and regulatory officers.

3.3 SUPERVISOR AND SUPERINTENDENT RESPONSIBILITIES

3.3.1 Commitment

- Review the company safety program and its benefits with all foremen new to the company or new to a job.
- Review job descriptions and describe to foremen their specific safety responsibilities.
- Inform foremen and workers of their right to refuse work under unsafe conditions.
- Explain to foremen the penalties for violating regulatory requirements and company safety policies.
- Review with foremen all applicable safety rules, standard work procedures and emergency procedures.
- Ensure that foremen are conducting daily tailgate safety meetings, recording minutes and providing copies to the company's head office.

3.3.2 Workplace Safety

- Maintain a daily diary to record safety and production activities.
- Ensure that workers are provided with a safe workplace by identifying hazards with pre-job inspections and reporting, develop and document critical work and/or safe work procedures and ensure foremen and workers are trained and understand the significance of these procedures.
- Ensure that emergency evacuation and/or transportation procedures have been developed for the worksite.
- Ensure that all employees receive worksite and safety orientation.
- Perform Field Level Hazard Assessments and share with employees.
- Enforce the company's progressive discipline policy.

3.3.3 Hazard Identification and Control

- Conduct ongoing inspection of the worksites for hazardous conditions and compliance with regulatory and owner requirements.
- Ensure formal jobsite inspections are regularly performed, documented and reviewed.
- If possible, remove or correct hazardous conditions.
- Mark remaining hazards and notify workers of the hazard type, location and the protection required.
- Whenever necessary, contact company safety personnel to help control hazards.
- Rotate crews to ensure stress and fatigue do not contribute to worksite hazards.

3.3.4 Worker Performance

- Ensure workers work safely and follow standard work procedures.
- Point out and correct unsafe work practices as soon as they are noticed.

- Set an example by working safely and following standard work procedures.
- Recognize workers for using safe work procedures.
- Encourage workers to provide input into safety program development and maintenance.
- Ensure workers report every incident and accident.

3.3.5 Serious and Fatal Incidents

- Obtain medical aid immediately if required.
- Shut down operations and clear the area if an accident causes or could cause serious injuries, equipment damage or interfere with rescue and first aid efforts.
- Secure all accident scenes, record names of witnesses, document accident details.
- Immediately notify the company's President, Operations Manager or HSE Manager of any accidents or incidents.
- Record and report all incidents and accidents and comply with regulatory requirements.
- Cooperate with company safety representatives and regulatory officers.

3.4 HSE MANAGER RESPONSIBILITIES

The HSE manager will ensure that the following reports are completed by all field supervisors and workers and sent to his attention:

- All jobsite inspection reports
- Incident/accident reports
- Supervisor/safety committee inspection report
- Tailgate meeting minutes
- Safety meeting minutes
- Jobsite safety committee meeting minutes

All safety concern information received from these reports will be transferred to the hazard/sub-standard conditions report. The HSE Manager will maintain the list and ensure all concerns identified are resolved and signed off by the person responsible for action, and will supply supervisors with a copy of this form so the information can be communicated at safety meetings. In addition, the HSE Manager will:

- Work with the Operations Manager to rank risk concerns and arrange for investigations for the high-risk items.
- Investigate all lost time, fatalities and major vehicle accidents.
- Maintain an employee training matrix, ensure that all necessary training is current and arrange for the training of those not in compliance. Conduct orientation training for all new and transferred employees.
- Conduct regular inspections of all worksites to ensure compliance with all legislation and company policies, standards, procedures and rules.
- Ensure all the requirements of the Surerus safety management system are being followed. Provide support for senior management and supervisors in their efforts to maintain and follow the system.
- Establish and maintain contacts with industry and government, and work with these groups to improve safety within the industry. Assist these groups in developing standards, rules and regulations when required.
- Maintain a filing system containing all the documentation required for the safety management system.
- Assist supervisors with general, pre-job and tailgate safety meetings where practical. Supply information and guide supervisors in meeting structure and content.
- Purchase and monitor the supply of all safety and personal protective equipment.
- Develop and maintain emergency response and report standards, including site-specific and corporate plans. Maintain all industrial hygiene program

requirements within the company, as well as sound level and audiometric testing.

- Develop and maintain all safety and environment policies, standards, practices and rules.

3.5 FIRST AID ATTENDANT RESPONSIBILITIES

The first aid attendant's primary responsibility is to be immediately available to perform first aid in a prompt and sanitary manner.

Other primary responsibilities include:

- Be available in or near a Mobile Treatment Centre (MTC)/Emergency Transport Vehicle (ETV) to maintain radio contact with all crew foremen in order to answer and respond to all accidents or incidents.
- Maintain ambulance with all required first aid supplies in a clean and sanitary condition, mechanically capable of traversing the areas it is intended to serve.
- Enter all recordable first aids in the daily accident record book and submit form 7A (first aid report) and company first aid treatment report for all accidents where an employee received first aid treatment.
- Assist site safety coordinator with ERP development as needed.
- Avoid situations where ambulances get boxed in. When possible, park in the clear with access to exit roads.
- Plan ahead and be prepared for any emergency.

Secondary responsibilities include duties of on-site safety representative.

- Assist supervisors with regular on-site safety inspections, and document and forward results to head office.
- Collect daily tailgate safety meeting minutes from each foreman and forward copies to head office.
- Collect details, data, information and names for all vehicle or equipment accidents or incidents and any near-miss or personal injury accidents. Complete accident reports and forward copies to head office.

3.6 CONTRACTOR AND SUBCONTRACTOR RESPONSIBILITIES

- Contractors and sub-contractors will follow all company rules, practices and procedures while on a company worksite.
- Each contractor or sub-contractor will maintain his or her own WorkSafe BC account. This account will be current and maintained in good standing while performing work for Surerus companies.
- Contractors will carry the necessary liability insurance as determined by Surerus company standards.
- Contractors will be responsible for developing and maintaining their own basic safety program for their company. Companies with fewer than 10 employees may work under a Small Employer Safety Program.
- Contractors are responsible for maintaining all equipment in a safe condition while performing work for the company.
- Contractors will employ competent workers and will give adequate and proper supervision.
- Contractors will ensure their programs and operations comply with contractual and regulatory requirements.
- Contractors will provide the time and resources required to enable subcontractors and employees to do their work properly.

3.7 EMPLOYEE RESPONSIBILITIES

- Become thoroughly familiar with the safety program.
- Actively participate in safety program development and maintenance.
- Participate in Field Level Hazard Assessments with the crew.
- Participate in the Behavior-based Safety Observation Program.
- Follow safety standards and safe work procedures set out by the company, its employees and other regulatory requirements.
- Refuse to perform work when unsafe conditions exist and refuse to perform work if not competent.
- Report potential hazards to supervisors.
- Immediately report all accidents, incidents, injuries and illness, as well as any incidents to which they are a witness, to supervisors.
- Participate in all training offered by the company, either on or off the worksite.
- Use required personal protective and safety equipment.
- Check tools and equipment, including personal protective and safety equipment, for hazards before using them.
- Know the location, type and operation of emergency equipment.
- Follow procedures of WHMIS or other regulations as identified on material safety data sheets.
- Know all legislative requirements that are specific to the worker under the Occupational Health and Safety legislation.
- Participate with management in the development of measurable safety objectives.
- Warn others of known hazards, or of their failure to observe proper safety measures.

3.8 VISITOR RESPONSIBILITIES

- All visitors to a jobsite will receive a site-specific orientation, and will be made aware of the requirement for wearing personal protective equipment and all applicable safety rules or procedures with which visitors must comply.
- Report to the appropriate individual before entering the jobsite.
- Receive permission to enter a jobsite and inform the appropriate company representative when they leave the site.
- Follow the instructions of the site supervisor or personal escort if applicable.
- Visitors will not walk about a worksite unless company management has granted permission.

Note: Individuals that perform service to communication systems or office equipment will be considered visitors to the workplace.

Section 4: LEGISLATIVE REQUIREMENTS

Table of Contents

4.1	Acts	26
4.1.1	B.C. Workers Compensation Act	26
4.1.2	Alberta Workers Compensation Act	27
4.2	Compliance	30
4.2.1	Interference with Claims	30
4.2.2	Reporting of Accidents Involving and Not Involving Injury	30
4.3	Workers' Compensation Board Inspections	31
4.3.1	Inspection Report	31
4.3.2	Reporting to Head Office or HSE Manager	31
4.4	Other Legislation	33
4.4.1	British Columbia	33
4.4.2	Alberta	33

4.1 ACTS

4.1.1 B.C. Workers Compensation Act

The *Workers Compensation Act* is responsible for providing compensation (wage loss), medical aid, and rehabilitation assistance to workers who have become injured or suffer from an industrial disease that is work related. All employees are workers under the WCA, and are entitled to compensation benefits.

In British Columbia, workplace health and safety is regulated under the WorkSafe BC *Occupational Health and Safety Regulations* effective Feb. 1, 2008. This legislation contains legal requirements to protect workers from occupational injuries and diseases that must be met by all workplaces under the inspection jurisdiction of WorkSafe BC. Mines and federally regulated workplaces are not under WorkSafe BC inspection jurisdiction and are excluded workplaces.

The *Occupational Health and Safety Regulations* cover the following areas:

Core Requirements

1. Definitions
2. Application
3. Rights and Responsibilities
4. General Conditions

General Hazard Requirements

5. Chemical and Biological Agents
6. Substance Specific Requirements
7. Noise, Vibration, Radiation and Temperature
8. Personal Protective Clothing and Equipment
9. Confined Spaces
10. Zero Energy and Lockout
11. Fall Protection
12. Tools, Machinery and Equipment
13. Ladders, Scaffolds and Temporary Work Platforms
14. Cables and Hoists
15. Rigging
16. Mobile Equipment
17. Transportation of Workers
18. Traffic Control
19. Electrical Safety

Industry and Activity Specific Requirements

20. Construction, Excavation & Demolition
21. Blasting Operations
22. Underground Workings
23. Oil and Gas
24. Diving, Fishing and other Marine Operations
25. Camps
26. Forestry Operations
27. Wood Products Manufacturing
28. Agriculture
29. Aircraft Operations
30. Laboratories
31. Firefighting
32. Evacuation and Rescue
33. Occupational First Aid (Repealed)

In B.C., safety legislation is designed to protect workers, the public and the environment. Compliance with these regulatory requirements is considered to be the **minimum standard** for this company's safety program. Compliance with this legislation helps prevent personal injuries, sanctions and legal actions and, therefore, the company's mandate will be to **meet** or **exceed** the **minimum standard** whenever possible.

4.1.2 Alberta Workers Compensation Act

The *Occupational Health and Safety Act* is responsible for providing compensation, medical aid and rehabilitation assistance to workers who have become injured or suffer from industrial disease that is work related. All employees working in Alberta are workers under the WCA, and are entitled to compensation benefits.

In Alberta, workplace health and safety is regulated under the following:

Core Requirements Applicable to All Industries

1. Definitions
2. Hazard Assessment
3. Specifications and Certifications
4. Chemical and Biological Agents
5. Confined Spaces
6. Cranes and Hoists
7. Emergency Preparedness and Response
8. Entrances, Walkways, Stairways and Ladders
9. Fall Protection

10. Fire and Explosion
11. First Aid
12. General Safety Precautions
13. Joint Worksite Health and Safety Committee
14. Lifting and Handling Loads
15. Managing the Control of Hazardous Energy
16. Noise, Vibration, Radiation and Temperature
17. Overhead Power Lines
18. Personal Protective Clothing and Equipment
19. Powered Mobile Equipment
20. Radiation Exposure
21. Rigging
22. Safeguards
23. Scaffolds and Temporary Work Platforms
24. Toilets and Washing Facilities
25. Tools Equipment and Machinery
26. Ventilation Systems
27. Violence
28. Working Alone
29. Workplace Hazardous Materials Information System (WHMIS)
30. Demolition
31. Diving Operations
32. Excavating and Tunnelling
33. Explosives
34. Forestry
35. Health Care and Industries with Biological Hazards
36. Mining
37. Oil and Gas Wells
38. Residential Roofing
39. Tree Care Operations
40. Utility Workers
41. Work Requiring Rope Access

In Alberta, safety legislation is designed to protect workers, the public and the environment. Compliance with these regulatory requirements is considered to be the **minimum standard** for this company's safety program.

Compliance with this legislation helps prevent personal injuries, sanctions and legal actions and, therefore, the company's mandate will be to **meet** or **exceed** the **minimum standards** whenever possible.

4.2 COMPLIANCE

4.2.1 Interference with Claims

Compensation cannot be waived. It is against the law for an employer to persuade, whether by agreement, threats, promises, inducements, or any other means, to discourage, impede or dissuade a worker, or worker's dependent, from reporting to the appropriate Workers' Compensation Boards, any of the following:

- an injury or allegation of injury, whether or not the injury occurred or is compensable
- an industrial disease, whether or not the disease exists or is compensable
- a death, whether or not the death is compensable
- a hazardous condition or allegation of hazardous conditions in any employment.

Submitting the WCB form (employer's report of an injury or disease) does not mean that the employer agrees with the compensation claim; it is merely the first step in the adjudication process of the claim.

4.2.2 Reporting of Accidents Involving and Not Involving Injury

This company shall report to the WCB every injury to a worker within three days of its occurrence that is or is claimed to be one arising out of and in the course of employment. In every case of an injury or disabling industrial disease, the worker shall, immediately or as soon as practicable after the occurrence, inform the company by giving information of the disease or injury to the immediate supervisor and first aid attendant.

In the event of a serious injury or fatality, it is required that WCB be notified immediately.

4.3 WORKERS' COMPENSATION BOARD INSPECTIONS

Workers' Compensation Board officers have the legal right to enter any workplace unannounced, at any time. On every inspection visit a management and workers' representative has the right to accompany the inspector on the tour. The representative shall be the job site supervisor or someone he or she designates. The workers' representative shall be selected by either the union or from the accident prevention committee. Otherwise, the officer of the board will appoint the workers' representative.

A supervisor may object to the selection of a worker representative if taking that worker from his or her work would unduly impede production. Another worker representative must then be chosen. A supervisor may only object to one selection on this basis. A worker representative accompanying an officer is entitled to the same wage rate or other remuneration as if he or she was doing normal work.

An officer of the board has the authority to close a dangerous operation, issue orders or directives and provide education and/or direction during an inspection.

It is an offence to obstruct an officer of the board.

4.3.1 Inspection Report

When the inspection report is given or sent to the company, it must be posted without delay at the workplace covered by the inspection report, in a location that is conspicuous to all workers at that workplace.

An inspection report must remain posted for at least seven days, or until compliance has been achieved, whichever is the longer period. The company must provide a copy of the inspection report to the Joint Committee before its next meeting.

Every person to whom an order or directive is issued must comply promptly or by the time set out in the order or directive. When the company is required to provide notification of compliance in response to an inspection report, the company must ensure that:

SECTION 1: a copy of the notification is posted next to the originating inspection report until compliance has been achieved, and

SECTION 2: copies are provided to the joint committee.

4.3.2 Reporting to Head Office or HSE Manager

The jobsite supervisor or his delegate must immediately notify the HSE Manager or head office of a board inspection or jobsite tour by a WCB officer, whether or not an order, directive or inspection report was issued or communicated by the officer.

If an order, directive or inspection report was issued at the jobsite, it must be immediately phoned into head office followed by a fax or delivery of a copy of the document that was issued.

If an order requires immediate compliance, the supervisor or his delegate must ensure that corrective action is taken immediately. If an order requires that the company has

time to comply, the supervisor will ensure that corrective action is taken within the time limit set by the board officer.

In any case the supervisor must report to the HSE Manager or head office any action taken to comply with the order and a written plan for corrective action on those items where time to comply was granted by the officer. The supervisor will then report to the HSE Manager or head office on all remaining orders as they receive corrective action.

4.4 OTHER LEGISLATION

4.4.1 British Columbia

Other governing legislation and agencies for British Columbia include but are not limited to the following:

Electrical Safety Act

SECTION 3: Electrical Safety Regulation

SECTION 4: British Columbia Electrical Code Regulation

Fire Services Act

SECTION 5: British Columbia Fire Code Regulations

Health Act

SECTION 6: Industrial Camps Health Regulations

Oil and Gas Commission

SECTION 7: Drilling and Production Regulations

SECTION 8: Petroleum Development Road Regulations

SECTION 9: Surface Lease Regulations

Pipeline Act

SECTION 10: Pipeline Regulations

Transport of Dangerous Goods Act

SECTION 11: Transportation of Dangerous Goods Regulation

4.4.2 Alberta

Governing legislation for Alberta includes, but is not limited to, the following:

Alberta Safety Codes

Energy and Utilities Board Act

Forest and Prairie Protection Act

Gas Resource Preservation Act

Hydro and Electric Energy Act

Manpower Development Act

Crane and Hoisting Equipment Operator Trade Regulations

Section 5: HSE COMMITTEE AND SAFETY MEETING REQUIREMENTS

Table of Contents

5.1	Purpose.....	36
5.2	Committee Guidelines.....	37
5.3	Committee Membership.....	38
5.4	Duties of the Committee	39
5.4.1	Duties of the committee member	39
5.4.2	Duties of the committee chair	39
5.4.3	Duties of the committee secretary	39
5.4.4	Duties of management	40
5.5	Definition of Authority and Procedures.....	41
5.6	Safety Meetings	42
5.6.1	General Safety Meetings	42
5.6.2	Daily Tailgate Safety Meetings	42

5.1

PURPOSE

The purpose of the Health, Safety and Environment (HSE) Committee and safety meeting requirements are to assist in creating a safe place of work and to recommend actions that will improve the effectiveness of the HSE Program.

HSE Committees are a requirement of the *Workers Compensation Act*, Part 3, Division 4.

Note: Where a company has less than 20 and more than eight employees on site a worker must be identified as the safety representative and will fulfill all the functions and duties of the Joint Workplace Health and Safety Committee.

5.2 COMMITTEE GUIDELINES

HSE Committees are established to maintain the interest of both management and employees in occupational health and safety matters in order to develop a better working environment.

Committee meetings can only be effective when they are planned, conducted and followed up in such a way as to make them an effective part of the health and safety program of the company. Without careful development of the committee structure and adequate control of committee activities, the potential effectiveness of the committee will not be achieved. The following guidelines provide committee members with a blueprint for effective operation.

The committee must:

- have a defined purpose
- be well organized
- have documented objectives
- review and update objectives on a regular basis
- know the extent of its authority
- follow committee guidelines

In addition, each committee member must know what his or her duties are, and there must be continuing education and training programs for all members to increase their knowledge and skills in health and safety matters so that they may fulfill their duties. The committee will accomplish very little if it is set up merely to meet WCB requirements.

5.3 COMMITTEE MEMBERSHIP

As outlined in the B.C. *Workers Compensation Act*, Part 3, Division 4, a Joint Workplace Health and Safety Committee must satisfy all of the following:

- The committee must have at least four regular members, employed at the operation and experienced in the types of work carried on at the operation.
- Membership is chosen by and represents the workers and the employer, but in no case may the employer's representatives outnumber those of the workers.
- The chair and secretary are elected from and by the members of the committee.
- If the chair of the committee is an employer member the secretary must be a worker member, and vice versa.

5.4 DUTIES OF THE COMMITTEE

The following outlines the duties and responsibilities of the committee as a whole:

- Review deficiencies from regular inspections of the workplace.
- Review accident investigations for corrective action.
- Recommend measures required to attain compliance with this regulation and the correction of hazardous conditions, and where feasible, appoint at least one worker member and one employer member to participate in the inspections and investigations.
- Participate in ensuring that the structures, equipment, machinery, tools, methods of operation and work practices meet the appropriate legislated requirements.
- Consider recommendations from the work force with respect to occupational health and safety matters and recommend implementation where warranted.
- Hold regular meetings at least once each month.
- Discuss other matters pertinent to occupational health and safety.
- Record the proceedings of the committee.

5.4.1 Duties of the committee member

- Participate in actions arising out of the minutes of the committee meetings.
- Attend scheduled meetings on time.
- Participate in workplace inspections.
- Attend meeting with previously delegated action items completed.

5.4.2 Duties of the committee chair

- Arrange for a meeting place in consultation with management.
- Make a time schedule for the meeting.
- Arrange for the seating of all members and guests.
- Develop and distribute to all members the agenda for each meeting.
- Review previous minutes and materials prior to each meeting.
- Attend meeting with previously delegated action items completed.

5.4.3 Duties of the committee secretary

- Record minutes of the meeting.
- Distribute the minutes.

- Report the status of suggestions and recommendations.
- Attend meeting with previously delegated action items completed.

SECTION 12:

5.4.4 Duties of management

- Provide time and resources for HSE Committee meetings.
- Ensure that committee meeting members are trained as per legislation.
- Participate in HSE Committee meetings and activities.
- Ensure that HSE Committee meetings are taking place and that they follow the guidelines outlined in this section.

5.5 DEFINITION OF AUTHORITY AND PROCEDURES

It is of vital importance that the extent of authority vested in the HSE Committee be established and clearly defined by management and workers.

Management is still responsible and accountable for the operation of this company's business, although it may delegate authority for a healthy and safe work environment to a committee. Such delegation does not make the committee a policy-making group.

The committee is authorized to make suggestions, recommendations and resolutions to management. At no time, however, may the committee unilaterally take action. Further, the committee must never interfere with the work of employees, nor should it take a critical attitude towards conditions or pass judgement.

Its authority is limited strictly to constructive recommendations or resolutions, and suggestions for improving conditions and practices. It must be clearly understood that recommendations are expected from the committee, and management will give serious consideration to the implementation of all such recommendations, but is in no way legally bound to implement any suggestions, recommendations, or resolutions made by the committee.

The main purpose of the committee business meeting is to attend to specific health and safety matters, including a review of its recommendations and results. If recommendations are not followed, the committee should be informed as to the reasons and any plans for future action.

5.6 SAFETY MEETINGS

5.6.1 General Safety Meetings

General safety meetings shall be held on a regular basis, at least once monthly. The supervisor in charge of the site will arrange the time and location of the meeting and employees' availability.

Meetings are mandatory for all employees and contractors and a signed attendance list will be maintained; absentee workers will be noted.

Meeting minutes will be recorded in a comprehensive and legible manner, and posted and retained on file by the HSE Manager.

The monthly safety meeting for the shop and office are to have topics outlined by the safety committee at least three months before the meeting. An agenda including the topic, meeting time and date are to be posted for at least one week prior to the meeting date.

On project sites, general safety meetings are to be done on a weekly basis as long as the project lasts, at which the HSE Manager will discuss general topics for all crews. These differ from the daily tailgate meetings, which cover site-specific matters for that day only.

Meeting forms are as follows, and are contained in the forms section of the manual (Section 15):

- Safety meeting agenda
- Safety meeting minutes
- Safety meeting attendance record
- Daily tailgate meeting form

5.6.2 Daily Tailgate Safety Meetings

Each crew engaged in work activities on the job site will hold a brief daily tailgate meeting to communicate why and how a specific task should be done. This procedure must be followed to ensure that workers and contractors have a clear understanding of the following:

- the task(s) objective
- the specific responsibilities of the persons performing the task(s)
- where and when the task(s) will be done
- hazards associated with the task(s)
- controls to address hazards
- procedures to follow during the task(s)
- emergency procedures
- other information important to the task(s)

All information communicated during these meetings shall be documented on the daily tailgate meeting forms provided by the company.

This type of meeting should be informal. On days where critical task(s) are not a relevant topic the supervisor or foreman shall pick one safety topic that applies to his crew and discuss and document this instruction/information session on the daily tailgate meeting forms provided by the company.

Section 6: HAZARD IDENTIFICATION AND CONTROL

Table of Contents

6.1	Introduction	45
6.1.1	Definitions	45
6.2	Project Hazard Assessment Process	46
6.2.1	Pre-construction safety meeting	48
6.2.2	Pre-Phase Safety Checklists	49
6.2.3	Field Level Hazard Assessments (FLHA)	49
6.3	Inspections	51
6.3.1	Purpose	51
6.3.2	General Project Site Inspections	51
6.3.3	Inspection Frequency	52
6.3.4	Equipment and Vehicle Inspections	52
6.3.5	Hazard Deficiency Management	52

6.1 INTRODUCTION

Hazard identification and control is paramount to the safe success of any project or work place. Once the hazards are identified controls need to be implemented to manage the risk to both workers and equipment.

The elements in this section will deal with hazard identification and control methods, including:

- Tools for identification of hazards
- Methods or processes used to control hazards
- Pre-job/pre-construction and pre-phase checklists and forms
- Safe work plan
- Jobsite and facility inspection processes
- Field Level Hazard Assessments

No work may be performed on Surerus worksites until a proper hazard assessment has been conducted to determine all immediate or potential hazards.

All Surerus management, superintendents, supervisors, employees, contractors and sub-contractors are expected to participate in the hazard assessment process.

6.1.1 Definitions

Hazard

A circumstance or condition that poses a risk to people or property.

Incident

An unplanned and unwanted event that results in, or could have resulted in, damage or injury.

Control

Measures taken to mitigate the effects of a hazard, such as a procedure (administrative) or re-engineering of equipment (physical).

Inspection

A systematic review of the physical work place to identify unsafe conditions or acts.

6.2 PROJECT HAZARD ASSESSMENT PROCESS

The need to identify hazards before they grow into an incident is of primary importance on any jobsite. Systematically examining the jobs and tasks to be carried out is the best way to ensure hazards are identified before they can cause harm.

Before any project starts a documented pre-construction hazard assessment must be completed by the HSE Manager (or designate).

The pre-construction hazard assessment must be done using any technical drawings, maps, specifications and input from construction management personnel. The HSE Manager or his designate must attend the site physically to assess hazards that may not be shown on other documentation.

The assessment uses the following example format:

-

• Chain age	• Task	• Hazards	• Controls	• Risk #
• 0+010 .0	• Pipeline crossing	Underground facilities Explosive mixtures •	Hydro-vac all lines in area to locate. Work to be conducted according to the ground disturbance permit. While working around the hot line the crew will have gas detection/continuous monitoring. A Field Level Hazard Assessment shall be conducted before performing the crossing procedure. •	• C1

The assessment must consider, but not be limited to, the following:

- Physical terrain such as steep hills, side hills and water ways
- Overhead power lines
- Buried facilities, power lines, phone lines
- Foreign line crossings of sour gas, natural gas, or water
- Well site facilities and risers, and above-ground piping facilities
- Restricted areas considering traffic (vehicle and equipment)
- Brushing, leaning trees, chainsaw work, clearing right of way
- Equipment operation
- Ditching, bell holes
- Pinch points

- Suspended loads
- Rigging configurations
- Emergency response challenges
- Communication
- Violence in the workplace

All hazards must be risk ranked to determine the level of attention to a particular hazard. The risk ranking considers the severity and probability should the hazard become an event. The risk ranking system uses an A1 to D4 numbering system to identify the risk of the hazard identified.

•

SEVERITY	1A	1B	1C	1D
1. Imminent danger 2. Serious 3. Minor 4. Negligible	2A	2B	2C	2D
	3A	3B	3C	3D
	4A	4B	4C	4D
	Probability A= probable B= reasonably probable C= remote D=extremely remote			

Controls

Controls are used to protect the worker from whatever hazards are identified in the hazard assessment process. To determine what type of control is best suited to the hazard we must first understand how to classify the controls.

Controls are typically identified as the following:

- **Engineering** controls involve a change in the physical features of the workplace, such as modifying a guard on a piece of equipment to protect workers. Engineering controls are the preferred method of protecting workers as it is less subjective and actually eliminates the hazard.

- **Administrative** controls are workplace policy, procedures, and practices that minimize the exposure of workers to risk conditions. They are considered less effective than engineering controls in that they do not usually eliminate the hazard. Rather, they lessen the duration and frequency of exposure to the risk condition. Administrative controls are applied when the cost or practicalities of engineering controls are prohibitive. Examples of administrative controls include rest breaks, additional employees performing a lifting task, and housekeeping for tools and work areas.
- **Personal Protective Equipment** controls are the least effective controls as the worker is still exposed to the risk factor. Some examples might include providing knee pads for welders kneeling on the ground all day, or anti-vibration gloves for workers using powered hand tools. Of course the usual Safety Glasses, Hard Hat and Safety Footwear.

The hazard assessment control process must consider the best control for each hazard and ensure that this control is implemented before work commences.

- The Surerus pre-construction hazard assessment will include the date and area controlled by the assessment. All controls must be reviewed and signed off by the HSE Manager and the site superintendent, who will also review the emergency response plan for the project at the pre-construction safety meeting.
- A copy of the completed pre-construction hazard assessment will also be placed in the foreman job binder and a copy given to all foremen on the project.
- The pre-construction hazard assessment will remain with the job leadership until the job is completed. During the project the hazard assessment may change with job scope. The on-site safety coordinator or superintendent will keep the hazard assessment up to date as new hazards are identified.
- Managers, superintendents, supervisors and safety personnel will be trained in the Surerus hazard assessment process. This training will be conducted by the HSE Manager or his designate. The training will take place before any employee is expected to perform a hazard assessment.

6.2.1 Pre-construction safety meeting

A pre-construction safety meeting must be held with all supervision and workers prior to beginning the project.

The superintendent is responsible for contacting the HSE Manager and conducting the pre-construction hazard identification. This meeting is to include any position needed to ensure a thorough examination of the hazards.

The HSE Manager or designate will provide the proper forms for the meeting and assist the Superintendent and other participants in properly filling out the forms.

When the meeting is concluded the safe work plan should be complete and activities assigned to personnel to carry out the hazard control work.

Form 6-2 (Pre-Construction Safety Meeting and Checklist) is to be used to ensure that all hazards identified in the pre-construction hazard assessment are communicated to all

workers on the site. The hazard controls to be implemented will also be shared with the meeting participants.

The meeting is to be chaired by the superintendent or his designate. The superintendent is responsible for recording the meeting using the appropriate form (6-2).

The completed pre-construction hazard assessment must be reviewed with all participants of the meeting

All participants are to sign in to the meeting for a proper record of the attendees and copies of the records be sent to the HSE Manager or on-site designate.

6.2.2 Pre-Phase Safety Checklists

Once the pre-construction safety process is completed and work is to be started, the pre-phase safety checklists must be used to identify specific hazards for each phase of the construction process. The project superintendent is responsible for ensuring that the specific crews performing the different phases meet and discuss the job scope and hazards associated to each phase. The checklists provide an excellent guide through the hazard and control sequences for each phase.

The pre-phase checklists cover the following phases:

Phase	Phase
Clearing	Welding, tie-ins and X-ray
Grading	Lower-in and backfill
Stringing	Pigging
Bending	Testing
Ditching	Coating
Road Bores	Final clean-up
Pipeline Crossings	River crossings

A meeting with all workers must be held to communicate the hazards and controls for each phase. The participants are to sign in and the records retained.

6.2.3 Field Level Hazard Assessments (FLHA)

The FLHA card is a tool to assist the supervisor and his workers in identifying and controlling task-specific hazards.

The cards are to be used when a set of hazards are present that are not covered in the daily tailgate meeting.

The supervisor will fill out the card on site using input from his or her crew to ensure the job scope and hazards are identified. Each employee present is expected to sign the card after the review.

The FLHA cards are used for activities including, but not limited to, the following:

- All foreign line crossings
- Daily activities outside the scope of the tailgate meeting
- Any job scope changes to original daily tasks
- Special power line crossing where heavy equipment is being moved
- Hot work such as tie-ins and working in hazardous atmospheres
- Ground disturbance work including hydro vac

The cards are to be handed into the job office daily unless the same work is being done the next day. In this case the same card may be used with new signatures and dates applied. The card may not be used for more than one week. If there are any changes to the work then a new FLHA must be documented and signed by the supervisor and his or her crew.

6.3 INSPECTIONS

6.3.1 Purpose

The purpose of inspections shall be to control losses of human and material resources by identifying and correcting unsafe acts and conditions. Through regular inspections, management can effectively monitor worksite conditions and work procedures to ensure company safety standards and regulatory requirements are being followed. Inspections will enable management to identify hazards before they become problems by revealing where improvements to equipment, work procedures, worker training and worksite conditions are needed.

All inspection findings and corrective measures shall be documented and shared with employees and others on the worksite by posting results along with discussions at tailgate meetings and safety meetings. All action items will be kept in a site-specific log and updated as deficiencies are corrected.

The HSE Manager is responsible for the overall implementation of this program.

Superintendents are responsible for directing formal inspections on jobsites that they control and for involving workers and supervisors. Supervisors are responsible for conducting ongoing informal inspections of areas where their crews are working and workers are responsible for participating in and contributing to the inspection program.

6.3.2 General Project Site Inspections

General sites include all field, shops, yards, camps and office worksites. All these sites will be regularly inspected for any possible hazards, including unsafe work practices and conditions. Inspections shall be scheduled according to the hazards at the sites.

Worksite inspections will assess the following:

- The physical layout and conditions of the site, including location, terrain, season, and weather
- Hazards of materials handled
- Condition of equipment and tools used
- Work practices and behavior of people at the site
- Level and quality of supervision given to workers
- Types and effectiveness of the controls

If the person conducting the inspection notices any unsafe behavior, work practices or conditions that are immediately dangerous to life and health, work shall be stopped immediately and the emergency situation corrected. In the event of an immediately dangerous to life and health (IDLH) scenario only essential, competent personnel will be allowed to remain in the area until the situation is made safe to return to work.

If the inspector witnesses safe work or a safe worksite, he/she shall let the workers involved know their efforts to maintain a safe work place, are appreciated.

6.3.3 Inspection Frequency

Jobsite Inspections

Formal jobsite inspections are to be carried out on a weekly basis and documented using the Jobsite Inspection Checklist. The form is available to all supervisors and safety coordinators.

Foremen are to conduct one jobsite inspection each week while the project is in progress. The inspection document is handed in to the superintendent for review and document retention.

All deficiencies will be delegated to an individual responsible to correct. The action must have a completion date assigned. When the correction is completed the supervisor must follow up and document the completion of the corrective action.

Shop and Yard Inspections

Formal shop and yard inspections are to be carried out on a monthly basis and documented using the Shop and Office Inspection Checklists.

The Fort St. John office, shop and yard complex are divided up into the following and all areas must be inspected once per month: main shop; main office; storage sheds; welding shop; paint shop; and yard area.

The safety committee will conduct the above inspections and determine corrective actions for each deficiency noted.

6.3.4 Equipment and Vehicle Inspections

All vehicles and equipment shall be inspected **daily** by the operators to monitor wear and tear and safe operating condition. Deficiencies will be noted in the inspection book's tear-out page and handed in immediately to the supervisor, who will then notify a mechanic or other service personnel to correct the deficiency. When the work is completed the mechanic or service personnel will note in the vehicle or equipment log book what work was performed.

All lifting equipment must have a pre-use documented inspection and a copy turned into the supervisor on a weekly basis unless there is a significant deficiency noted in the machine; this would then be brought to the supervisor's attention immediately.

Checklists have been developed for all mobile equipment, each of which has a checklist/log book in it: dozers and ripper cats; excavators; trucks; heavy hauler trucks; side booms; overhead cranes; boom trucks/picker trucks; graders; loaders; forklifts; and floor hoists.

6.3.5 Hazard Deficiency Management

After every inspection deficiencies noted will be assigned to an individual responsible for controlling any hazards found, along with deadlines for compliance or corrective action. The area supervisor will keep an action log of all corrective action items and ensure they are complete by following up with the person responsible to correct.

Whenever possible, hazards will be eliminated.

If elimination is not possible, other control measures shall be used to protect workers. These measures include:

- Performing maintenance on equipment and vehicles.
- Marking hazards with signs, flags, lights, alarms, barricades, fences, labels, placards or other materials.
- Providing personal protective and other safety equipment to workers.
- Using engineering controls to eliminate or reduce the impact of hazards.
- Using purchasing controls to replace unacceptable or faulty items.
- Informing workers of the hazards at safety meetings and identifying in Field Level Hazard Assessments.

All corrective actions must be analyzed to ensure they do not create a new hazard while trying to correct a previous one.

Section 7: OCCUPATIONAL HEALTH, SAFETY, & ENVIRONMENTAL PROGRAMS AND SAFE WORK GUIDELINES

Table of Contents

7.1	Program Objectives and Guidelines Philosophy	60
7.2	Modified Work Program.....	61
7.2.1	Purpose	61
7.2.2	Proactive Involvement	61
7.2.3	Responsibilities	61
7.2.3.1	<i>Operations Manager.....</i>	<i>61</i>
7.2.3.2	<i>Superintendent.....</i>	<i>61</i>
7.2.3.3	<i>HSE Manager.....</i>	<i>61</i>
7.2.3.4	<i>Employee.....</i>	<i>61</i>
7.3	Maintenance Program.....	63
7.3.1	General	63
7.3.2	Daily	63
7.4	Noise Control and Hearing Conservation Program.....	66
7.4.1	Noise Measurement	66
7.4.2	Education and Training	66
7.4.3	Engineered Noise Control	66
7.4.4	Hearing Protection	67
7.4.5	Hearing protection signage	67
7.4.6	Audiometric Testing	67
7.4.7	Audiometric Program Review	68
7.5	Respiratory Protection Program (Code of Practice).....	69
7.6	Scope.....	70
7.6.1	Definitions	70
7.6.2	Responsibilities	70

7.6.3	Training	71
7.6.4	Use of Respirators	71
7.6.5	Respirator Selection	72
7.6.6	Respirator Maintenance, Storage, and Inspection	73
7.6.7	Types of Respirators	73
7.6.7.1	<i>Dual Cartridge Respirators</i>	73
7.6.7.2	<i>Powered Air Purifying Respirators</i>	74
7.6.7.3	<i>Self-Contained Breathing Apparatus</i>	74
7.7	Respirator Fit Testing	74
7.8	Program Records and Evaluation	75
7.8.1	Records	75
7.8.2	Evaluation	75
7.9	Breathing Air Quality Systems	76
7.9.1	Cascade Systems	76
7.10	Worker Respirator Assignment/Fit Testing Methods	78
7.11	Fit Test Procedures	80
7.11.1	Positive Pressure Test Procedure	80
7.11.2	Negative Pressure Test	80
7.11.3	Banana Oil Test	80
7.12	Use and Limitations	81
7.13	Precautions	81
7.14	Respirator Inspection	82
7.15	Respirator Cleaning	82
7.16	Respirator Storing	83
7.17	Breathing Air Quality Systems	83
7.18	Air Monitoring	84
7.19	Worker Protection and Atmosphere Tests	84

7.20	Atmosphere Testing Procedure For Electronic Gas Testers.....	84
7.21	Substance Abuse Program	85
7.21.1	Shared Responsibilities	85
7.21.2	Management Responsibilities	85
7.21.3	Employee Responsibilities	86
7.21.4	Prevention	86
7.21.5	Work Standards	86
7.21.6	Fitness for Work	87
7.21.7	Illicit Drugs	87
7.21.8	Alcohol	87
7.21.9	Medications	87
7.21.10	Assessment, Rehabilitation, and Aftercare	87
7.22	Referral Procedures	88
7.22.1	Informal Referral	88
7.22.2	Formal Referral	88
7.23	Employee Intervention	89
7.23.1	Approach Unfit Employee	89
7.23.2	Approach Unfit Employee's Supervisor	89
7.24	Alcohol and Drug Testing.....	90
7.24.1	Reasonable Cause	90
7.24.2	Post-Incident Drug Test	90
7.24.3	Return to Work After a Positive Test	90
7.24.4	Return to Work After Treatment	90
7.25	Testing Procedures	91
7.26	Aftercare.....	92
7.27	Alternate Work.....	92
7.28	Safety-Sensitive Positions.....	92
7.29	Pre-Employment Alcohol and Drug Testing.....	92

7.30	Consequences of a Policy Violation	92
7.31	Contractors	94
7.32	Unscheduled Call-Out	94
7.33	Social Event and Business Hosting	95
7.34	Employee Assistance Program.....	96
7.35	Questions.....	96
7.36	Working Alone Program	97
7.36.1	Purpose	97
7.36.2	Responsibilities	97
7.36.2.1	<i>Managers, Supervisors, and Employees.....</i>	<i>97</i>
7.36.2.2	<i>Person Working Alone.....</i>	<i>97</i>
7.36.2.3	<i>Working Alone Hazard Assessment.....</i>	<i>97</i>
7.37	Working Guidelines.....	98
7.37.1	SUPERVISION REQUIREMENTS	98
7.37.2	General Work Requirements	98
7.37.3	Tools, Machinery And Equipment	99
7.37.4	General and Administrative Requirements	100
7.38	Contractor and Subcontractor Minimum Requirements and Guidelines	101
7.39	Progressive Disciplinary Guidelines	102
7.39.1	Enforcement Procedures and Systems	102
7.39.2	Guidelines and Penalties	103
7.39.3	Situations Where Superintendent or Immediate Supervisor is Responsible	104
7.40	Employee Selection and Placement	105
7.41	Fall Protection.....	106
7.42	Anchor Points.....	106
7.43	Training.....	106
7.44	Ladders and Climbing Devices	108

7.45	Fire Protection	114
7.45.1	Forest Practices Code of British Columbia	114
7.46	First Aid.....	116
7.47	Head and Facial Hair	117
7.48	Hot Work	118
7.49	Housekeeping.....	120
7.49.1	Good Housekeeping Practices	120
7.50	Lock Out/Zero Energy	121
7.51	Office Safety	125
7.52	Personal Protective Equipment (PPE)	127
7.53	Main Shops and Yard Requirements.....	133
7.53.1	Main Shop	133
7.53.2	Fabrication Shop	133
7.54	Purging.....	134
7.55	Refusal of Unsafe Work.....	135
7.56	Safe Work Permit	136
7.57	Safety Indoctrination and Orientation.....	138
7.58	Site Access, Design, and Maintenance	140
7.58.1	Access to Work Areas	140
7.58.2	Arrangement of Work Areas	140
7.58.3	Door Installations	140
7.58.4	Restricted Entry	140
7.58.5	Restricted Visibility	140
7.58.6	Slipping and Tripping Hazards	140
7.58.7	Waste Material and Clean Up	140
7.59	Manual Material Handling And Storage	141

7.60	Traffic Control.....	145
7.61	Fatigue Management.....	147
7.62	Violence/Harassment in The Workplace.....	151

7.1 PROGRAM OBJECTIVES AND GUIDELINES PHILOSOPHY

The Health, Safety and Environment Program objectives and guidelines in this manual are based on the following philosophy:

- Safety will take precedence over expediency.
- Programs will be designed to ensure that an efficient, orderly approach is taken towards HSE safety management to provide a safe and healthy workplace.
- Each employee will have access to this program and, to the best of their ability, take an active part in making it work.
- Each employee will be trained with the philosophy that safety and productivity work together.
- Individual employees are responsible for their safety and the safety of their fellow workers. Each worker has the duty to refuse any unsafe work.
-

7.2 MODIFIED WORK PROGRAM

7.2.1 Purpose

The purpose of this program is to provide continued employment to injured workers in a joint effort to eliminate interruptions of earnings, without aggravation or delays to a full recovery, allowing the worker to return to their pre-injury position.

7.2.2 Proactive Involvement

Where and when possible a Surerus representative should accompany an injured worker who requires medical aid. The representative will advise the treating physician of the modified work program options available and provide the doctor with **form 7-1** to be completed. When possible, the injured person will be returned to perform a useful task within his capability, which will not adversely affect his or her ability to recover from that injury.

7.2.3 Responsibilities

7.2.3.1 Operations Manager/Project Manager

The Operations Manager will oversee operation of the modified work program. It will be included in the employee orientation at the time of hire so that workers fully understand the program. The Corporate Safety Department is available at any time to assist in implementing the program.

If used properly, a modified work program can have a positive effect on employee morale. Employees will be encouraged to know that in the event of injury or illness, their jobs will not be jeopardized.

7.2.3.2 Superintendent

It is the superintendent's responsibility to ensure that employees are aware of the modified work program, to accompany an injured worker to a medical facility and to ensure that suitable work has been made available to the injured worker, within the limitations of the injury as indicated by the attending physician.

7.2.3.3 HSE Manager

It is the HSE manager's responsibility to assist management and employees in the implementation of this program. The HSE Manager is to provide expertise in case management issues.

7.2.3.4 Employee

Employees should know that the Workers' Compensation Board encourages the use of modified work programs for employees who are injured at work. Refusing modified or restricted work when it is available could jeopardize a worker's claim to WCB benefits.

- Note:** Before an employee can be considered for the modified work program, the following conditions must be satisfied:
- A physician must authorize the return of work.
 - The work must be productive and meaningful.
 - The work must not aggravate the employee's condition.
 - The duration of the modified work program must be well defined.
 - The employee must not exceed their modified work limitations.

It is the employee's responsibility to:

- Communicate to the physician that modified (light duty) work is available and, with the physician's approval, participate in the program
- Present the modified work programs report form (form 7-1) to the physician and return the completed form and WCB physician's first report to Surerus.
- Complete and submit to the WCB their worker's report.

7.3 MAINTENANCE PROGRAM

All tools and equipment shall be properly maintained to reduce risk of injuries to employees or damage to property.

Supervision shall ensure that all preventative maintenance is carried out by qualified personnel according to the manufacturer's recommendations and that records are maintained.

All employees shall regularly check all tools and equipment they are working with, and shall take out of service any tools or equipment that create a hazard due to a need for repair.

The maintenance supervisor is responsible for ensuring that all equipment needing preventative maintenance is properly managed

7.3.1 General

- Equipment shall be serviced to not less than the manufacturer's specifications. It may become necessary to vary maintenance schedules because of the differences in equipment and conditions of assembly, installation and operation.
- Raised blades or other equipment components shall be secured with blocking or approved safety supports during maintenance.
- During maintenance activities, equipment shall be locked out or when lock out is not possible, a sign posted on controls identifying that the equipment is not operational.
- Servicing, maintenance and repair of mobile equipment must not be done when the equipment is operating, unless continued operation is essential to the process and a safe means is provided.
- Fuel trucks, lube trucks and service trucks will be equipped with an adequate fire extinguisher.

7.3.2 Daily

In addition to any other requirements, at the start of every shift the operator shall make a pre-operational check of the following:

- all fluid levels (fuel, crankcase oil, coolant)
- battery
- belts, radiator hoses
- bolts and mountings around engines
- air cleaner and connections
- drain cocks
- evidence of vandalism
- walkways, handrails and ladders.

After starting the engine and bringing it up to operating temperature the operator will check the following:

- Engine
- oil pressure is normal
- oil level is sufficient
- temperature is normal
- battery is not discharging
- air cleaner is functioning properly
- Air and hydraulic system
- pressure is correct for operation
- hoses have no cuts, abrasions or bulges and are right and leak-proof
- oil level in hydraulic reservoir is normal
- no visible leaks in seals
- filters are functioning properly
- Filter
- check for contaminants
- replace if scheduled or near scheduled replacement date
- **Tires:** check for cuts, abrasion, wear, and adequate pressure (Surerus shop employees are not permitted to disassemble tire and wheel assemblies; this is outsourced to professional tire shops)
- **Lights:** all bulbs and fuses are intact and functional
- **Crawler tracks:** in good condition, adequate for the terrain and the operation to be carried out
- **Fastening devices:** ensure there are no loose bolts or fasteners
- **Guards:** visually check all guards, ensure that they are in place and functional
- **Controls:** the equipment is operational and will travel, raise and lower smoothly
- Braking clutch system
- clutch does not slip
- emergency and/or parking brakes are operational
- Steering
- on mobile carriers — there is correct alignment and no excessive slackness
- on track vehicles — both tracks will operate independently, move in opposite directions, and all tracks lock
- on rough terrain units — all steering modes operate
- Safety and warning devices
- seat belts are in good condition and are in use
- back-up alarms are functioning

- starting in gear disabling mechanism is functioning
- maintain oil and grease as per manufacturer's specifications
- **All hoisting equipment** (booms, pickers, cranes)
- contain log books
- log books are signed daily and have applicable entries made

In addition to any other requirements, where the manufacturer has specified an inspection of the equipment or its components the operator or other competent person shall:

- inspect the structural components and pins for wear
- visually inspect traveling components and pins for wear, and controls for ease of function

7.4 NOISE CONTROL AND HEARING CONSERVATION PROGRAM

When noise exceeds regulated limits, the company shall have an effective noise control and hearing conservation program.

The regulated limit set by WorkSafe BC for noise exposure is 85 decibels (dBA) for an eight-hour period, or an equivalent noise exposure of one pascal-squared hour. For impact noises (for example, pile-driving or hammering), a 135 dBA peak sound level cannot be exceeded.

The goal of the company's hearing conservation program is to reduce the noise exposure of workers to a safe level and prevent occupational hearing loss, therefore a hearing conservation program shall be in writing and shall address:

- noise measurement
- education and training
- engineered noise control
- hearing protection
- posting of noise hazard areas
- hearing tests
- annual program review

7.4.1 Noise Measurement

Noise measurement will be conducted where a noise hazard potential exists or where a task analysis indicates that the hazard exists due to a change or introduction of a new process.

A noise survey will be conducted for the shop and office areas once every two years unless the work environment changes significantly.

7.4.2 Education and Training

The education will be conducted on a yearly basis and can be carried out at the local safety meetings as a meeting topic.

Employee education and training shall include the effects of high noise exposure, fitting and use of hearing protection devices, and the purpose of and procedures for audiometric testing.

Training will also include identifying and controlling potential noise sources.

The training will be carried out by the HSE Manager or his designated training provider.

7.4.3 Engineered Noise Control

Engineering controls will be used where practical and effective and will be subjected to a proper hazard analysis before being implemented.

7.4.4 Hearing Protection

The supervisor will ensure that his or her employees wear the appropriate hearing protection, which will consist of plugs and muffs (or both) where the level of the noise exceeds 106 dBA. Plugs and muffs will be supplied by Surerus and will be present on every jobsite.

Surerus management and supervisors must ensure that hearing protection equipment provided to workers exposed to excess noise meets the requirements of CSA Standard Z94.2-02, "Hearing Protection Devices-Performance, Selection, Care, and Use," and is of the appropriate class and grade described in the following table.

Maximum equivalent noise level (dBA L _{ex})	CSA class of hearing protection	CSA grade of hearing protection
≤ 90	C, B or A	1, 2, 3 or 4
≤ 95	B or A	2, 3 or 4
≤ 100	A	3 or 4
≤ 105	A	4
> 110	A earplug + A or B earmuff	3 or 4 earplug + 2, 3, or 4 earmuff
≤ 110	A plug + A or B earmuff and limited exposure time to keep sound reaching the worker's ear drum below 85 dBA L _{ex}	3 or 4 earplug + 2, 3, or 4 earmuff and limited exposure time to keep sound reaching the worker's ear drum below 85 dBA L _{ex}

7.4.5 Hearing protection signage

Where the noise level exceeds the legal limit of 85 dBA, signs will be posted to ensure that employees recognize the area as noise hazardous. The signs will be conspicuously posted and will be specific for the area they are intended to cover.

The HSE Committee and the HSE Manager will review the signage requirements for the shops on a yearly basis.

7.4.6 Audiometric Testing

All employees that are or are potentially exposed to noise above the legal limit of 85 dBA will be subjected to hearing tests provided by the company. The HSE Manager will

administer the tests through a qualified agency and will ensure that appropriate records are kept. The hearing tests will be conducted once per year.

7.4.7 Audiometric Program Review

An annual review of the program and its components will be conducted by the HSE Committee and HSE Manager. The review is to ensure that the program is effective in preventing hearing related problems and that it achieves compliance with health and safety legislation.

7.5 RESPIRATORY PROTECTION PROGRAM (CODE OF PRACTICE)

7.6 SCOPE

The Respiratory Protection Code of Practice described herein is designed to ensure that the proper respiratory protection is used by all workers, under the direct supervision of Surerus. This is to provide effective protection against exposure to airborne contaminants that may be encountered on some projects.

7.6.1 Definitions

IDHL	An atmosphere that is immediately dangerous to health and life.
Protection Factor	Ratio of airborne concentrations inside to outside the respirator piece.
Qualified Person	One who, by extensive knowledge, training and experience is competent in administering the respiratory protection program.
Qualitative Fit Testing	Determination of respirator leakage by use of negative and positive pressure testing.
Quantitative Fit Testing	Determination of respirator leakage by calculating a numerical protection factor.
Respirator Protection Coordinator	A qualified person designated by site management to coordinate the respiratory protection program.
Respirator Wearer	A worker who is medically qualified and trained in the need, use, maintenance, sanitary care, and limitations of such respiratory protective equipment.

7.6.2 Responsibilities

Surerus is responsible for the development and implementation of a written operating procedure for the Respiratory Protection Program as described herein.

The Operations Manager is responsible for administering the overall program.

The Project Superintendent is responsible for: ensuring that field staff are adequately trained and instructed in the correct use, limitations and maintenance requirements for the issued respirator; providing the appropriate respirators; ensuring availability of respirators; ensuring proper use of the respirators; ensuring respirators are inspected regularly; and, maintaining the appropriate records.

Employees are responsible for: understanding the respirator manufacturer's instructions and training; cleaning, disinfecting, inspecting, maintaining and storing the respirators; and, reporting malfunctioning or defective respirators to the HSE Manager. All Surerus workers who are required to use respiratory protection for performing work will be familiar with the Respiratory Code of Practice.

7.6.3 Training

All Surerus workers who are required to wear respiratory protection during the course of their duties will be trained in the correct use, limitations, and maintenance requirements of the respirators issued to them. All training is to be documented and records kept in the Fort St. John office.

Before any worker is issued a respirator they will receive training that will consist of the following:

- Assessment of the potential respiratory contaminants present in the work area.
- Proper selection of the respirator appropriate to the protection required.
- Operation, limitations and capabilities of the respirator.
- Fit testing.
- Cleaning, maintenance and storage.
- Emergency procedures (all employees responding to a confined space emergency must be trained in rescue operations).

7.6.4 Use of Respirators

The following is a list of workers' responsibilities when using respirators:

- Workers must use only approved respiratory equipment.
- Workers that are required to wear respiratory protection will be **clean** (absence of facial stubble) where the respirator seals with the face.
- Corrective eyewear and safety eyewear must not interfere with the **seal of the respirator**.
- Contact lenses will not be worn.
- Workers must inspect respirators and perform a face piece fit check before each use.
- Workers will use respirators as per manufacturer's instructions.
- Workers will not pass respiratory equipment from one person to another.
- Workers will store and maintain respirators as instructed.
- The correct cartridge must be selected for the specific airborne contaminant (i.e. H.E.P.A. or combination filters used for concrete dust containing silica)
- Workers found not wearing prescribed respiratory equipment will be subject to the conditions of the Surerus discipline process up to and including termination.
- If any person wearing a respirator experiences any of the following conditions, they must leave the contaminated area and report symptoms to the area supervisor immediately:
 - Nausea
 - Dizziness
 - Eye irritation
 - Unusual odour or taste

- Excessive fatigue
- Difficulty breathing

7.6.5 Respirator Selection

Respirators and cartridges will be issued to Surerus workers who require them after consideration of the contaminants that each individual may encounter in the course of their duties. These devices shall be specified according to the concentration and type of the airborne contamination present or expected at each worksite. Every precaution shall be taken to maintain the airborne contamination concentrations as low as reasonably achievable through the use of engineering and administrative controls.

Only respirators and cartridges bearing NIOSH or MSHA approval stamps/ certification or the CSA requirements Z94.4-02 "Selection, Use and Care of Respirators" will be issued to Surerus workers.

Before a respirator can be issued to protect the worker from a respiratory hazard, the Health, Safety and Environment department must be contacted to evaluate chemical and radiological hazards present at the work area.

In selecting respiratory protection equipment the following factors shall be considered:

- Nature of hazard (i.e. dust, mist, spray, fume, vapor, gas or combination).
- Extent of the hazard.
- Contaminant(s) present.
- Concentration of contaminants.
- Characteristics and limitations of the available respirators.
- Expected activity of the worker.

Immediately Dangerous to Life and Health (IDLH) areas will have high visibility warning signs posted and will be barricaded whenever possible. At no time will workers enter these areas without prior authorization, air tests, hazard assessment and the proper respiratory protection. IDLH areas are defined as any work environment that has:

- Toxic contaminants with IDLH concentrations.
- Oxygen-deficient atmosphere (less than 19.5% oxygen).
- Untested, unventilated confined spaces.
- Atmosphere containing flammable gases greater than 10% of the Lower Explosive Level (LEL), or as per site specifications.
- Atmospheres identified by the site-specific hazard assessment to be IDLH.

The following respiratory protective equipment shall be used in atmospheres that are oxygen-deficient or immediately dangerous to life or health:

- Self-contained breathing apparatus (SCBA).
- Combination air-line respirator and five-minute escape self-contained breathing apparatus.

- Self-contained breathing apparatus rated for at least 30 minutes service time for entry into immediately dangerous to life or health atmosphere.
- When the device is a combination of self-contained breathing apparatus and air-line respirator, either a manual or automatic valve shall be provided to change to self-contained air supply if the air-line supply fails.
- Air-line respirators will be used in areas where the contaminant levels are expected to be higher than the level designed for an air purifying respirator.

-

Note: All SCBAs must be inspected and documented every 30 days and after each use.

Fifteen-minute SCBA units shall be used for emergency regress and not for rescue work or re-entry.

7.6.6 Respirator Maintenance, Storage, and Inspection

Respirators will be properly stored, maintained, inspected and cleaned according to the manufacturer's recommendations.

Respirator wearers who have respirators assigned for their personal use must clean their respirators at least daily when used, or more frequently if required.

Respirators including self-contained breathing apparatus used for emergency purposes and respirators used for escape will be inspected at least monthly. These respirators will be protected from the elements.

- Conduct air testing continuously until work has been completed.
- Record the results of all air tests on the safe work permit.
- Always refer to the manufacturer's instructions on proper calibration and use of gas testing units.

7.6.7 Types of Respirators

7.6.7.1 Dual Cartridge Respirators

Dual cartridge respirators are issued to individual Surerus workers for their personal use only. These units are not to be shared with others, unless the unit has been disinfected, cleaned and then re-issued by the Project Health, Safety and Environmental Coordinator. Ensure dual cartridges are identical. Cartridges issued to Surerus workers may include, but are not limited to the following types:

Type of Cartridge	Cartridge Colour Code
Organic vapour (used in banana oil testing)	Black
Organic vapour	Yellow
Combination	Yellow/purple

(organic vapour/acid gas
H.E.P.A.)

Cartridges that are removed from the factory air-tight packaging must either be used or discarded within three months. At the end of a day's use the cartridges must be placed in a sealed plastic container.

7.6.7.2 Powered Air Purifying Respirators

Powered air-purifying respirators (PAPR) equipped with an air-purifying element must be issued where a PAPR does not provide adequate protection in high risk atmospheres. These units must be closely maintained according to the manufacturer's specifications and serviced by qualified technicians.

7.6.7.3 Self-Contained Breathing Apparatus

Self-contained breathing apparatus (SCBA) will be used when air-line supplied respirator (ALR) equipment is not feasible or not available on site. SCBA will also be used where the work environment dictates that emergency breathing apparatus is required to respond to a work emergency situation. These units must be carefully maintained and stored in cases provided for field applications and/or according to the manufacturer's specifications and serviced by qualified technicians.

7.7 RESPIRATOR FIT TESTING

Each respirator shall be fit tested to the wearer to ensure minimum face piece leakage. The fit test shall be conducted for both half- and full-face respirators. The fit test shall be performed on the respirator type and the make the worker will be wearing. Only clean-shaven persons will wear a respirator.

- Use respiratory protection only after every effort has been made to eliminate the airborne contaminate.
- Fit the respirator carefully.
- Instruct the worker in the proper use of the respirator.
- Inform the immediate supervisor of the need to re-assign the worker to other duties when it is deemed the worker is unable to safely wear a respirator.

Certain medical conditions may prevent a worker from wearing a respirator, including:

- Pre-existing respiratory conditions (emphysema, bronchitis, asthma).
- Breathing difficulty while wearing a respirator.
- Claustrophobia or anxiety while wearing a respirator.

An individual with any pre-existing medical conditions that do not reasonably allow the worker to use a respirator shall be re-assigned to other work. The worker shall not be disciplined due to the work restriction.

7.8 PROGRAM RECORDS AND EVALUATION

7.8.1 Records

The applicable forms, including Worker Respiratory Assignment Record (Form 7-2) and Respirator Fit Testing (Form 7-3) will be kept on site by the Surerus Project Health, Safety and Environmental Coordinator. These forms can be found in the forms section of this manual (Section 15).

7.8.2 Evaluation

The respiratory protection program shall be evaluated on an ongoing basis by the HSE Manager or designate to determine the program's effectiveness. The evaluation will include the following:

- technical information review
- compliance with regulations
- review of medical qualifications
- review of training qualifications
- review of respirator fit test documentation
- review of reports of respirator or cartridge failures
- maintenance and cleaning procedures review
- review of inspection procedures
- record keeping requirements
-

Caution: Store respirators and serviceable cartridges/filters in plastic bags in a warm, dry environment, away from dust, direct sunlight, and any harmful or damaging chemicals.

All air-purifying respirators cleaned on site shall be inspected frequently and the results of the inspection recorded on the respirator maintenance. Respirators cleaned off site by a sub-contractor are exempt from this inspection requirement. However, a statement from the sub-contractor may be necessary to confirm that such an inspection has been conducted and documented in the log.

Self contained breathing apparatus and other emergency respirators shall be inspected and recorded monthly on the respirator maintenance log. This is to be done before each use and during periods of storage.

The complete air-line respiratory system will be checked before each use.

Hose masks and blower, when used, shall be checked at least monthly for proper operation.

When replacing worn or deteriorated parts, only those made specifically for the device shall be used and the repair work recorded.

Air purifying cartridges should be replaced according to the time schedule for the job. If no schedule is provided, they should be replaced at the first trace of contaminant odour or any increased resistance to breathing while wearing the respirator.

Respirators for the exclusive use of one worker should be cleaned after each day's use or more often as necessary. Those used by more than one worker shall be thoroughly cleaned and disinfected after each use.

7.9 BREATHING AIR QUALITY SYSTEMS

Compressed air that is used in supplied air respirators and SCBA shall be of high purity.

Breathing air used in a self-contained breathing apparatus or an air-line respirator is of a quality that meets the requirements of Table 1 of CSA Standard Z180.1-00 and does not contain a substance in a concentration that exceeds 10% of its occupational exposure limits. Pure oxygen shall **never** be substituted for compressed air. Breathing air may be supplied to respirators from cylinders or compressor systems.

Where practical, a breathing air compressor shall be used. The compressor shall be situated so as to avoid entry of ambient contaminated air into the breathing air system and suitable in-line air. An oil-less compressor system shall be equipped and maintained in accordance with manufacturer's specifications or better. Oil lubricated compressors shall be equipped with a high temperature shut off and/or an alarm system and alarm actuation system to safeguard against exposure to carbon monoxide, compressor failure, and monitor failure. If only a high temperature alarm is used, the air shall be tested daily for carbon monoxide unless specified otherwise by the Health, Safety and Environment Coordinator/Manager.

Continuous carbon monoxide monitors are highly recommended. Filters shall be entrained for removal of water and oil from the breathing air. A storage tank of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere shall be installed in the event of compressor failure.

7.9.1 Cascade Systems

Breathing air cylinders shall be legibly identified with "BREATHING AIR" by means of stencilling, stamping or labelling as near to the valve end as practical.

Cascade systems shall be equipped with low pressure warning bells (Pak alarm, etc.) or similar warning devices to indicate air pressure in the manifold is below 500 psi.

When a cascade system is used to supply breathing air, one employee shall be assigned as safety standby within audible range of the low pressure alarm.

When a cascade system is used to recharge SCBA air cylinders, it shall be equipped with a high pressure supply hose and coupling rated at a capacity of at least 3,000 psi.

Air-line couplings shall be incompatible with outlets for other gas systems to prevent inadvertently supplying air-line respirators with non-breathable gasses or oxygen.

The air pressure at the hose connection to positive pressure respiratory equipment shall be within the range specified in the approval of the equipment by the manufacturer.

Cylinders shall be stored and handled to prevent damage to the cylinder or valve. Cylinders shall be stored upright with the protective valve cover in place, and in such a way as to prevent the cylinder from falling (i.e. supported with substantial rope or chain in the upper one-third of the cylinder, or in racks designed for this purpose).

Cylinders shall not be dropped, dragged, rolled, or allowed to strike each other or to be struck violently, and shall never be exposed to temperatures exceeding 52°C (125°F). Cylinders with visible external damage, evidence of corrosive damage, or exposure to fire shall not be accepted or used. Only cylinders within current hydrostatic test periods shall be used.

Cylinders must be pressure tested annually by a certified tester.

7.10 WORKER RESPIRATOR ASSIGNMENT/FIT TESTING METHODS

At a minimum, qualitative fit testing shall be performed before workers use negative pressure respirators. This method of fit testing shall be conducted initially and annually or semi-annually thereafter depending on applicable health, safety and environment regulations. Each respirator fit test shall be documented with a protection factor within acceptable limits. Any individual worker unable to pass a qualitative fit testing shall not be allowed to wear the respirator.

Qualitative fit testing shall be performed using an irritant smoke banana oil, saccharin solutions or other appropriate method. Fit tests are performed to verify the proper seal is attained and must be completed prior to using any rubber or neoprene mask. An improperly fitted mask will not protect a worker.

Quantitative fit testing is mandatory with certain health, safety and environment regulations and optional in lieu of qualitative for all other applications.

WORKER RESPIRATOR ASSIGNMENT RECORD (Form 7-2)

1. Company Name _____
2. Date _____
3. Worker Name _____
4. Job Title _____
5. Work Location _____

Respirator Issue:

6. Type of respirator to be issued/expected to use
7. To be used under conditions specified here
8. Estimated frequency of cartridge/filter replacement

Daily Weekly Monthly Bi-annually

Program surveillance

Trainer:

Date:

9. Worker informed of hazard(s)
Yes No
10. Worker trained in safe work practices/job procedures
Yes No
11. Worker issued respirator
Yes No
12. Worker trained in respirator
Yes No
13. Worker trained in emergency procedures
Yes No

All of the above has been explained to me and I clearly understand my responsibilities as detailed in accordance with the Surerus Respiratory Protection Program.

Worker Signature: _____ **Date:** _____

Worker Name: (please print) _____

7.11 FIT TEST PROCEDURES

Fit testing must be done for any worker using a respirator in the course of his or her duties. The fit test must be performed using the type and size of respirator mask being donned for work.

7.11.1 Positive Pressure Test Procedure

Close the exhalation port by covering it with the palm of your hand. Exhale gently so that a slight positive pressure can be built up inside the face piece. If there is no leakage, the negative fit test is performed.

7.11.2 Negative Pressure Test

Remove the cartridges from the respirator. Close the inlet ports by covering both with the palm of your hands. Inhale gently so that the face piece collapses slightly. If the face piece remains slightly collapsed and no leakage is detected, the respirator fit is considered to be satisfactory.

Note: The positive/negative pressure fit tests are the minimum testing requirements for the purposes of this program. A banana oil test or irritant smoke test may be required to ensure the maximum performance of respiratory protection equipment. Determination of testing requirements will be made by the site Health, Safety and Environment Coordinator prior to issuance.

7.11.3 Banana Oil Test

The Banana Oil Test is a “non-specific fit test” for all respirator wearers. It involves exposing the respirator wearer to banana oil vapours; if the mask is not properly sealed the wearer is able to smell the banana odour. The following steps are then required:

- Ensure organic cartridges are in place.
- Have the wearer adjust the respirator to fit normally.
- The tester breaks the banana oil ampoule and holds the ampoule eight to 10 inches below the respirator while watching for a reaction from the wearer.
- If leakage is detected at any point in the test, the wearer must stop the test and re-adjust the respirator for a better fit and then continue with the test.
- If leakage is still detected after the respirator has been re-adjusted, replace the cartridges and re-test.
- If the wearer is still unable to attain a proper seal, select another mask size or style. If the seal fails again, the worker can't be permitted into the contaminated area.

Note: This test should only be performed after the wearer has completed a positive/negative pressure fit test and the participant has agreed to participate in the testing process.

7.12 USE AND LIMITATIONS

Air purifying respirators shall **not** be used for rescue work or for emergency work of any nature for the following reasons:

- These respirators do not supply oxygen and, therefore do not protect against possible oxygen deficiencies.
- Gas masks are intended for use with no more than 2% by volume of most toxic gases.
- Chemical cartridge respirators are intended for use in a toxic atmosphere. Cartridges shall be changed when the wearer detects the odour of the contaminant or has an increased resistance to breathing. When the expected contaminant has no odour, a new cartridge shall be installed in the respirator at the start of each day of use.
- Respirators issued for the exclusive use of an individual shall be marked with the individual's name or badge number.
- Specific chemical cartridges available for protection against specific hazards shall only be used for that hazard.

Canisters and cartridges shall be specifically selected for the toxic gas and concentration to be encountered. Canister masks that bear the label "ALL-SERVICE," "UNIVERSAL" or similar notions shall not be used.

An effective seal between the face piece and face must be obtained to prevent inward leakage. Air purifying respirators along with demand-type respirators operate under negative pressure when the wearer inhales; therefore, some inward leakage of contaminant may be possible in the absence of an air-tight seal.

If the temple bars of eye glasses extend through the sealing edge of a full face mask, a proper seal cannot be obtained.

Glasses with short temple bars or without temple bars may be taped to the wearer's head. Full face masks that have been developed with systems for mounting corrective lenses inside the face piece are preferred.

The wearer's use of spectacles or goggles should not interfere with a half-mask face piece.

A stand-by person, equipped with SCBA, is required for work in IDLH types of confined spaces that require air line with escape pack respiratory protection (for purposes other than nuisance odour or nuisance dust).

7.13 PRECAUTIONS

Respirators usually provide a satisfactory pathway for speech transmission over short distances in relatively quiet areas. An alternate form of communication between workers shall be established where respirators are used in noisy areas.

To prevent face pieces from fogging up in low temperatures, anti-fog compounds may be used to coat the inside of the eyepiece.

Pure oxygen shall **NOT** be used for respirator protection, unless closed circuit oxygen breathing apparatus are being used.

Hoses for air supply should be selected to resist chemicals to which they may be exposed.

7.14 RESPIRATOR INSPECTION

Prior to each use, the wearer will inspect all respiratory protection equipment. Inspect the face piece for the following:

- Cracks, tears, holes, or distorted face piece.
- Inflexibility of the rubber face piece.
- Cracked threads, broken cartridge holder.
- Missing gaskets for chemical cartridges.
- Foreign material in inhalation or exhalation ports.
- Improperly sealed valves.
- Missing or defective valve covers.

Inspect the head harness for the following:

- Loss of elasticity.
- Broken buckles and attachments.
- Slippage from strap locks.

7.15 RESPIRATOR CLEANING

Respirator cleaning will be done daily when used, or more frequently if necessary.

Cleaning will consist of:

- Disassembling the respirator.
- Cleaning all surfaces with a mild soap and warm water solution.
- Rinsing the respirator with clean warm water.
- Hand drying the respirator prior to use and testing.

All air purifying respirators cleaned on site shall be inspected frequently and the results of the inspection recorded on the respirator maintenance log. Respirators cleaned off site by a sub-contractor are exempt from this inspection requirement. However, a statement from the sub-contractor may be necessary to confirm that such inspections have been conducted and documented in the log.

Self-contained breathing apparatus and other emergency respirators shall be inspected and recorded monthly on the respirator maintenance log. This is to be done before each use and during periods of storage.

The complete air-line respiratory system will be checked before each use.

Hose masks and blower, when used, shall be checked at least monthly for proper operation.

When replacing worn or deteriorated parts, only those made specifically for the device being serviced shall be used and the repair work recorded.

Air purifying cartridges should be replaced according to the time schedule for the job. If no schedule is provided, they should be replaced at the first trace of contaminant odour or any increased resistance to breathing while wearing the respirator.

Respirators for the exclusive use of one worker should be cleaned after each day's use or more often as necessary. Those used by more than one worker shall be thoroughly cleaned and disinfected after each use.

7.16 RESPIRATOR STORING

Respirators and serviceable cartridges/filters must be stored in plastic bags, in a warm dry environment, away from dust, direct sunlight, and any harmful or damaging chemicals.

7.17 BREATHING AIR QUALITY SYSTEMS

Compressed air that is used in supplied air respirators or SCBA shall be of high purity. Breathing air shall meet all requirements of the American National Standards Institute (ANSI) for a minimum of Grade D breathing air. Pure oxygen shall **never** be substituted for compressed air.

Breathing air may be supplied to respirators from cylinders or compressor systems.

Where practical, a breathing air compressor shall be used. The compressor shall be situated so as to avoid entry of ambient contaminated air into the breathing air system and suitable in-line air. An oil-less compressor system shall be equipped and maintained in accordance with manufacturer's specifications or better. Oil lubricated compressors shall be equipped with a high temperature shut off and or alarm system and alarm actuation system to safeguard against exposure to carbon monoxide, compressor failure, and monitor failure. If only a high temperature alarm is used, the air shall be tested daily for carbon monoxide unless specified otherwise by the HS&E Manager/coordinator.

The respiratory protection program coordinator or designate will conduct and document frequent random inspections to ensure that respirators are properly maintained.

Respirators shall always be placed on a flat surface, and are not to be hung by their straps. They shall be stored in a cool dry location with moderate temperatures.

Respirators found to be defective during inspection shall be repaired immediately or tagged "out of service."

7.18 AIR MONITORING

When any air conditions exist or air quality is questionable due to the work being performed, air tests shall be done to verify the presence of contaminants and to ensure appropriate respiratory protection is selected.

These tests shall be performed:

- By competent, trained, and experienced personnel.
- Prior to beginning any work in the area, and as work progresses.
- If a worker leaves and re-enters the area, e.g., for scheduled breaks.

7.19 WORKER PROTECTION AND ATMOSPHERE TESTS

Atmospheric testing must be conducted by a competent individual, to ensure conditions are properly evaluated. All atmosphere tests will initially be conducted from outside the work areas. If a worker must enter a confined space to conduct atmospheric tests, he or she shall be protected with self-contained breathing apparatus, lifeline attached to a rescue hoist and competent safety watch.

7.20 ATMOSPHERE TESTING PROCEDURE FOR ELECTRONIC GAS TESTERS

Zero or calibrate the analyzer in a known fresh air supply upwind from confined space. Attach probe and aspirator to the instrument. Insert the probe through pick hole and draw air sample. When no access opening exists, open the cover on the downwind side enough to insert the probe. The internal atmosphere shall be tested with a calibrated direct reading instrument for oxygen content, flammable gases and vapours and potential toxic air contaminants, in the order given:

- Lower the probe into the space and test at various levels to detect gases that may be lighter or heavier than air. Allow adequate time for a sample to be drawn into the instrument and to be analyzed to ensure accurate results.
- If the instrument alarms at any time, ventilation is required until air quality is safe for worker entry. If ventilation does not effectively reduce the contaminants the supervisor will determine the proper level of protection prior to entering space.
- Workers will never enter an area determined by testing to be explosive regardless of personal protective equipment. Immediately post "EXPLOSIVE GASES PRESENT" signage.

7.21 SUBSTANCE ABUSE PROGRAM

7.21.1 Shared Responsibilities

All employees and Surerus Pipeline Inc. share responsibility for the effectiveness of this program. Surerus recognizes alcohol and drug dependency as treatable health problems and will provide access to assistance programs while ensuring confidentiality, fairness and respect for employees. In turn, an employee who may have an alcohol or drug problem is expected to assume ownership of that problem and use the counselling and treatment services that are available.

Safe, reliable and competitive service cannot be achieved in a workplace where job performance is affected by the use of alcohol or drugs. As a result, the company will:

- Promote a safe and healthy working environment that does not include any inappropriate use of alcohol or drugs.
- Provide prevention programs that emphasize awareness, education and training.
- Provide access to confidential assessment, counseling, referral and aftercare services.
- Emphasize managing job performance through effective supervision.
- Administer alcohol and drug testing for applicants and employees as outlined in the guidelines.

7.21.2 Management Responsibilities

- Early identification and handling of performance problems, including those that may be caused by alcohol or drug use. While no attempt will be made to diagnose a health problem, supervisors must take action if the employee's work performance is no longer satisfactory or if safety could be compromised.
- Refer an employee for a confidential medical assessment where there are reasonable grounds to believe performance problems may be health-related.
- Refer an employee for an alcohol and drug test when required to do so under the policy.
- Assist in the development and administration of performance management agreements.
- Ensure that for company-related social activities, whether on company premises or off, appropriate regard is taken for the safety and well-being of the individuals present and the community.
- Respond to questions on the policy and its interpretation.
- Assist in the administration and interpretation of the alcohol and drug policy ensuring consistent application and fair treatment of employees.
- Be responsible for ongoing education and awareness programs for employees.
- In conjunction with medical service providers, assist with the coordination of the alcohol and drug testing program, assessment, rehabilitation and aftercare.

7.21.3 Employee Responsibilities

- Read and understand the policy and their responsibilities under it.
- Perform duties safely.
- Meet established performance standards.
- Be fit for work while on company business and premises.
- Seek assistance and follow appropriate treatment if they have a substance use problem.
- Cooperate in the assessment, treatment and recommended medical work limitations proposed by a health professional. If the employee refuses, the company's performance management process will continue and health reasons will not be accepted as a contributing cause to the problem.
- Manage potential impairment during working hours due to the legitimate use of medications by reading labels carefully and checking with their personal physician or pharmacist if they are not clear about the possible side effects. If it seems likely a drug may cause significant impairment on the job, employees are responsible for obtaining the written advice of a personal physician regarding any medical work limitations. Employees are to report such situations to their supervisor. To maintain confidentiality of the condition being treated, employees are not required to identify the type of medication or related condition.
- Maintain a valid driver's license (if a requirement of the position). Employees will immediately notify their supervisor of a loss of license and specify if it is a result of a conviction for an impaired driving offence.
- Immediately notify their supervisor of an impaired driving charge or conviction received while driving on company business or operating a company vehicle.

7.21.4 Prevention

This program stresses the importance of prevention and early identification of potential problem situations resulting from alcohol and drugs. The company will provide ongoing alcohol and drug education and awareness programs to employees, managers and supervisors. The programs will provide information on health and safety, recognizing performance issues, and how to access assistance. The company believes that employee knowledge and awareness of the potential risks associated with the use of illicit drugs and inappropriate use of alcohol and medications can assist in ensuring a safe, healthy and effective workplace environment.

7.21.5 Work Standards

In support of a responsible approach to alcohol and drug use, and to eliminate the risk of impaired performance, the following work standards apply to all employees — permanent, probationary, seasonal, casual, and permanent part-time — while on company business or premises.

7.21.6 Fitness for Work

Employees must be able to perform assigned responsibilities safely and satisfactorily without limitations due to the use or after-effects of alcohol and drugs.

7.21.7 Illicit Drugs

- The use, possession, distribution, offering or sale of any illicit drugs and illicit drug paraphernalia while on company business or premises is prohibited.
- The presence of illicit drugs in the body while on company business or premises is prohibited.

7.21.8 Alcohol

- The use, distribution, offering or sale of alcoholic beverages or the possession of open containers of alcohol while on company business or premises is prohibited.
- Having a blood alcohol concentration greater than the established level (.04%) while on company business or premises is prohibited.
- Employees are expected to use alcohol responsibly after hours at company-sponsored social events or business functions.
- Exemptions regarding alcohol on company business or premises may be made in limited circumstances, subject to prior approval by the CEO, GM, or a representing authority.

7.21.9 Medications

Employees are expected to use medications, both prescribed and over-the-counter, responsibly. Medications of concern are those that may cause significant impairment on the job and impact an employee's ability to perform their job. The intentional misuse of medications while on company business or premises is prohibited.

7.21.10 Assessment, Rehabilitation, and Aftercare

Access to confidential assessment, counselling, referral and aftercare services will be provided for all permanent employees through the Employee and Family Assistance Program (EFAP), which is covered under the benefits plan. Casual, seasonal and probationary employees are also encouraged to access the EFAP; however, they will incur all associated costs.

Information shared within the EFAP will remain strictly confidential, the only exception being circumstances where there is an imminent danger to the employee or others, or where required by law. In the case of a formal referral, the employee must consent in writing to the release of periodic progress reports to management.

7.22 REFERRAL PROCEDURES

7.22.1 Informal Referral

An employee can initiate an informal referral through the Employee and Family Assistance Program if they think they may have an emerging problem with alcohol or drug use that could affect or is affecting their health or work performance. No employee with an alcohol or drug problem will be disciplined or terminated for voluntarily requesting help in overcoming the problem, provided the request is made prior to being asked to submit to an alcohol and drug test.

A supervisor can also make an informal referral by suggesting to the employee that they may want to utilize the services of the Employee and Family Assistance Program.

7.22.2 Formal Referral

Where there are reasonable grounds to believe that an employee's performance problems may be health related, the company requires the employee to participate in a confidential medical assessment. The employee must follow recommended rehabilitation, treatment, aftercare and monitoring. Employees will also enter into a performance management agreement that outlines the conditions for their return to work.

7.23 EMPLOYEE INTERVENTION

Employee intervention may be required if an employee observes that a co-worker or supervisor appears to be unfit for work. There are two options available for employee intervention.

7.23.1 Approach Unfit Employee

A concerned co-worker can discuss their concerns and observations with the unfit employee. At this time the employee should be encouraged to contact the Employee and Family Assistance Program.

7.23.2 Approach Unfit Employee's Supervisor

The unfit employee's supervisor can be approached when an employee is uncomfortable approaching the unfit employee directly. The employee who intervenes must document their observations. The unfit employee's supervisor must investigate and determine if a referral is required. If the immediate supervisor is unavailable, the next level supervisor should be contacted.

7.24 ALCOHOL AND DRUG TESTING

Recognizing that the use of illicit drugs and the inappropriate use of alcohol and medications can have adverse affects on an employee's health, safety and job performance, testing for alcohol and specified drugs will be conducted in the following circumstances:

7.24.1 Reasonable Cause

The company will require employees to submit to alcohol and drug testing where reasonable cause exists to believe alcohol or drug misuse. Reasonable cause includes, but is not limited to, instances where there are observable physical signs of impairment of the employee's ability to perform their work. The decision to test will be made by the supervisor or manager, with concurrence of Human Resources wherever possible.

7.24.2 Post-Incident Drug Test

After a significant work-related incident occurs, the decision to refer an employee or group of employees for an alcohol or drug test will be made by management on a situational basis.

It is not necessary to conduct a post-incident test if there is clear evidence that the acts or omissions of employees could not have been a contributing factor (e.g. structural or mechanical failure).

Those employees identified with reasonable and probable grounds to have been directly involved in the chain of acts or omissions leading up to the incident will be referred for a test. It is recognized that a positive post-incident test does not independently prove that substance use was the cause or even a contributing factor in the incident.

7.24.3 Return to Work After a Positive Test

After testing positive for alcohol or drugs, employees will be tested on an unannounced basis for a minimum of two years upon returning to work.

7.24.4 Return to Work After Treatment

Following a formal referral where the assessment determined a concern for alcohol or drugs, employees will be tested on an unannounced basis for a minimum of two years upon returning to work as part of the conditions outlined in the performance management agreement.

7.25 TESTING PROCEDURES

Sample collection, testing and reporting of results will be conducted in accordance with standards established by the Standards Council of Canada to ensure the accuracy and integrity of the results. Rigorous sample collection, storage and chain-of-custody procedures will be followed. In addition:

- Employees taking an alcohol and/or drug test will be required to sign a form immediately before the time of sample collection authorizing the release of results to a designated company position in charge of the program.
- Except for the release of information in accordance with this policy and in situations affecting the health and safety of workers and the public, results of all testing will be maintained by a designated company position and will be kept strictly confidential.
- Tests will be conducted to determine the presence of cannabinoids, amphetamine/methamphetamine, cocaine, opiates, phencyclidine, and alcohol. The testing program will cover alcohol and the specified drugs only and it will not include testing for other medical conditions.
- Alcohol tests will be administered by a saliva strip or breath test, and will be confirmed by a calibrated breathalyzer. In situations when a calibrated breathalyzer cannot be available for sample collection within a reasonable period of time and where the saliva strip shows a level of .04% blood alcohol concentration or above, modifications of work responsibilities may result.
- Drug tests will be administered by urinalysis. Collection of urine specimens and administration of alcohol tests will be performed by trained collection agents.
- Urine samples will be analyzed by a fully qualified and accredited laboratory using a two-step process, with initial screening by immunoassay and all confirmations performed by gas chromatography/mass spectrometry (GC/MS).
- Confirmed positive test results will be reviewed by a qualified medical review officer and the employee concerned will be given an opportunity to explain the finding before it is communicated to the designated company official.
- For the purpose of this policy, a positive alcohol test will be one in which the blood alcohol content is .04% or greater. However, when an employee is subject to a random test on return to work after treatment, or on return to work after a positive test result, a positive test will be one in which the BAC is .02% or greater.
- A positive drug test is one in which the amount of drug in the sample identified by the confirmation test exceeds the cut-off levels established by the Standards Council of Canada.
- An employee who has been tested and has received a verified positive test result conducted in accordance with this policy may request that the same sample be retested at an accredited laboratory of their choice within a week of receiving the results. If this produces a second confirmed test, the employee requesting the second analysis is responsible for the associated costs.

7.26 AFTERCARE

Following a formal referral where the assessment determined a concern for alcohol or drugs, employees will be required to participate in a structured monitoring program in order to help them maintain recovery. This program will include unannounced alcohol and drug testing for a minimum of two years.

7.27 ALTERNATE WORK

Where safety is a concern and work limitations are recommended by a health professional, reassignment of work, modified work or absence with disability benefits during treatment may result.

7.28 SAFETY-SENSITIVE POSITIONS

Safety-sensitive positions are positions in which employees have a key and direct role in an operation where impaired performance could result in a catastrophic incident affecting employees, customers or the public. Examples include supervisors/foremen, heavy equipment operators, persons using overhead cranes, riggers, any person on steel above six feet, truck drivers, and any persons using compressed gasses.

7.29 PRE-EMPLOYMENT ALCOHOL AND DRUG TESTING

In addition to the alcohol and drug testing outlined above, Surerus reserves the right to have drug testing conducted for pre-employment purposes.

As part of the recruitment process, if an external applicant is a new hire or “re-hire” whose break in service is more than 10 months, an offer of employment for a designated safety-sensitive position could be conditional upon submitting to a pre-employment drug test for specified illicit drugs and receiving a negative result for such test.

If an applicant for a labourer position is not required to perform any safety-sensitive work for the duration of their employment, they may be exempted from pre-employment drug testing with the manager’s approval.

7.30 CONSEQUENCES OF A POLICY VIOLATION

If an employee violates the provisions of this policy or does not meet satisfactory standards of work performance as a result of alcohol or drug use, a review will be conducted. An employee may be suspended with pay pending the results of the review.

The individual circumstances of the review will determine the specific disciplinary action to be taken, up to and including termination of employment.

A positive test result will be considered a violation of the policy and grounds for termination of employment, whether or not alcohol or drugs were consumed while on company business or premises. Employees with a positive test result may be allowed to enter into a performance management agreement that outlines conditions for return to work and includes unannounced testing for a minimum of two years upon returning to work. A second positive test result will be grounds for termination of employment.

Failure to report for a test within the specified time period, refusal to submit to a test, or any attempt to tamper with a test sample will result in the same disciplinary action as for a positive test result.

In situations where there are clear signs of observable impairment on the job, an employee may be terminated, with vice president approval, with or without a positive test result.

In addition to the above, the company may review situations where an employee's off-the-job actions involving alcohol or drugs impact the company, and take appropriate action under the circumstances.

7.31 CONTRACTORS

The Substance Abuse Program applies, in whole or in part, to contractors, their employees and sub-contractors while providing services to or for the company.

Contractors will be made aware of this program and the applicable provisions at the time a contract for services is signed. All contractors will ensure the program work standards for their employees and sub-contractors are met and a high priority is given to health, safety and performance when providing their services.

Contractors will be expected to enforce these requirements with their employees and others engaged on their behalf. Any violation of this policy will be considered a breach of contract.

7.32 UNSCHEDULED CALL-OUT

If contacted for an unscheduled call-out, an employee should decline if work standards will not be met.

In an emergency, where other employees with the required skills are not available, a managed process may be developed to allow an employee to respond when potential impairment has been identified by the employee. This process, involving consultation between a supervisor and the employee, will take into consideration the nature of the emergency and judgement with respect to the potential impairment.

- The employee responding will not be held in violation of this policy.
- No employee will be asked to take any action that would violate a law.
- No employee will be required to respond if they feel unfit to do so.

7.33 SOCIAL EVENT AND BUSINESS HOSTING

For company-related social activities, whether on company premises or off, appropriate regard must be taken for the safety and well being of the individuals present and the community.

Prior approval by the applicable CEO, GM, or designate is required for the use of alcohol at functions conducted on company premises, and when the company is sponsoring an off-site event.

In any other hosting situation in the course of conducting business, if alcohol is made available, employees are expected to use judgement and common sense in hosting others. Failure to comply with these basic procedures may result in the elimination of financial contributions to social events, or a limitation on business-related hosting.

In support of the work standards and in order to control alcohol consumption, the following guidelines should be considered while hosting company social functions (e.g. retirement parties, golf tournaments, banquets):

- Have knowledgeable servers to work at event.
- Appoint a designated host or hostess, who is responsible for:
 - obtaining permits
 - establishing the general tone of the event
 - acting as the contact with the servers regarding opening and closing times, food and beverage arrangements, etc.
 - ensuring bars are attended at all times
 - ensuring alcohol is not served to individuals who appear to be intoxicated
 - taking steps to respond to abusive or unsafe behaviour
 - taking steps to prevent an apparently intoxicated attendee from driving after the function
- arranging alternate transportation or accommodation when necessary

7.34 EMPLOYEE ASSISTANCE PROGRAM

All employees within the Surerus organization that have been identified with a substance abuse problem, or come forward themselves stating that they have a problem, will be referred to an alcohol and drug service, and any costs incurred will be paid for by the company. Confidentiality will be maintained.

Available Agencies

Agency	Information	Phone Number
• North Peace Addiction Services		(250) 262-5269
• Ministry of Health	No cost	(250) 262-5369
• Alcoholics Anonymous 24-hour answering service		(250) 785-8866
• Narcotics Anonymous		1-999-543- 2499
• Fort St. John Friendship Society	Aboriginal only	(250) 785-3411

Counselling and monitoring of the program will be done in confidence.

7.35 QUESTIONS

Questions regarding program details or interpretation are welcome. Please direct questions to a supervisor or manager.

7.36 WORKING ALONE PROGRAM

7.36.1 Purpose

The purpose of this program is to reduce the risks associated with working alone, where assistance is not readily available in the event of an illness, injury or emergency.

7.36.2 Responsibilities

7.36.2.1 Managers, Supervisors, and Employees

- Ensure that a hazard assessment has been done and that there is an effective means of communication in place.
- Maintain a maximum time of 30 minutes between calls.
- Ensure no employee works alone, with the exception of long-haul truck drivers traveling recognized routes. Long-haul trucks will have a GPS tracking system, radios and cell phones installed.
- Designate an individual to establish contact with the worker at pre-determined intervals and record the results.
- Ensure employees required to work alone, and any person assigned to check on the worker, are trained in the applicable written procedure.

7.36.2.2 Person Working Alone

- Use communication provided prior to working alone to contact pre-determined person to relay information regarding location, work being performed and estimated completion time.
- Use communication provided to contact the pre-determined person when work is completed and hazard no longer exists.
- For most working alone situations, the contact numbers will be:

SECTION 13: 1-250-785-2423

SECTION 14: 1-888-785-2423

7.36.2.3 Working Alone Hazard Assessment

The working alone procedure must be followed by anyone performing one of the following tasks:

- Operating heavy equipment with no contact with other employees or the public.
- Traveling on isolated or seldom traveled roads.
- Working alone in hazardous environment.
- Working alone with little or no contact with other employees or the public.
- Loading or unloading equipment alone.
- Repairing or servicing equipment alone.

Tasks of a clearly hazardous nature will not be performed alone. These tasks include, but are not limited to, work involving: high energy, toxic, flammable, high pressure materials; and/or confined spaces.

Should the task and/or condition be assessed as imminently dangerous, STOP the work, protect yourself, guard the condition and then install appropriate risk controls immediately.

The working alone process will be reviewed by the HSE Manager on a yearly basis to ensure the process is effective.

7.37 WORKING GUIDELINES

7.37.1 SUPERVISION REQUIREMENTS

Supervisors are responsible for administering and enforcing the Surerus Pipeline Inc. Health, Safety and Environment (HSE) Program. This is to include new employee orientation, advising workers of their responsibilities and enforcement of the Surerus Work Policy and employee disciplinary procedures.

The Supervisor and site Safety Coordinator will organize a pre-job inspection and identify safety hazards associated with the job according to the company's Hazard Assessment Standard.

The Supervisor will organize a pre-job meeting with his foremen; items to be discussed will include the pre-job inspection and hazards identified, bid document content, estimated work days, equipment to be used and the procedures and requirement for submission of accurate daily progress reports to head office.

Supervisors are required to use daily diaries to log important items including record of and reason for employee dismissal. Copies of the diary are to be turned in to head office upon completion of the job.

It is the responsibility of the Supervisor to obtain an accident report for any accident and any damage to vehicles or equipment. Verbal notification to head office is required within 12 hours of any accident, incident, or damage to equipment, and a written report must be submitted within 24 hours.

7.37.2 General Work Requirements

- Vehicles are to have drivers designated by the supervisor or immediate foreman. Supervisors will ensure that drivers have a valid driver's license of appropriate class.
- Employees reporting for work and showing signs of being under the influence of drugs or alcohol will be immediately sent home with a one-week suspension.
- All vehicles shall be fuelled up at night and parked in the yard.
- No vehicle shall be parked at a liquor establishment.
- On completion of jobs, vehicles shall be cleaned inside and out.

- All machines shall be fuelled up when shift is complete and a list of all defects shall be given to the mechanic.
- Employees shall ensure they report in for work 10 minutes prior to their shift starting time. Employees late for work without good cause will lose that day's work and may lose their job if their position is filled during the missed day.
- If an employee quits one supervisor to work for another without proper notice and the approval of that supervisor, then that employee will be considered terminated and not eligible for re-hire for a period of 90 days.
- Work hours will be established by the shop supervisor or project superintendent in accordance with occupational health and safety regulations.

7.37.3 Tools, Machinery And Equipment

There are many areas at Surerus where tools and equipment are used to perform work functions. The Surerus supervisor must ensure that each tool, machine and piece of equipment in the workplace is capable of safely performing the functions for which it is used and operated in accordance with the manufacturer's instructions, and safe work practices. A tool, machine or piece of equipment determined to be unsafe for use must be identified in a manner that will ensure it is not inadvertently returned to service until it is made safe for use.

Moving machinery can be particularly dangerous. It is imperative that employees working around such equipment are aware of the potential danger of getting caught in any moving mechanisms.

Workers performing tasks around tools, machinery and equipment should be aware of the potential to have contact between their clothing, jewelry or hair and any moving parts of machinery, electrically energized equipment or part of the work process. Any modification of a tool, machine or piece of equipment must be carried out in accordance with the manufacturer's instructions, safe work practices, and the requirements of the applicable regulation.

If machinery, equipment or a structure is dismantled in whole or in part, and subsequently re-assembled, it must be checked by a qualified person and determined to be safe before operation or use.

Workers must wear clothing that fits closely to the body, not wear bracelets, rings, dangling neckwear, a wristwatch or similar articles and have head and facial hair that is short or confined and cannot be snagged or caught.

Surerus shops and yard areas have many types of tools, machinery and equipment, including:

Equipment	Machinery	Tools
-----------	-----------	-------

• Fork lifts • Front end loaders • Side booms • Dozers • Graders • Excavators • Quads • Trucks	• Handheld grinders • Bench grinders • Welders • Cut-off saws • Chainsaws • Jacks • Air compressors • Water pumps • Generators	• Wrenches • Pliers • Screw drivers • Hand saws • Pry bars • Slings • Chains • Chart recorders
---	--	---

The application, design, construction and use of safeguards, including an opening in a guard and the reach distance to a hazardous part, must meet the requirements of CSA Standard Z432-94, "Safeguarding of Machinery."

Rotating parts such as friction drives, shafts, couplings and collars, set screws and bolts, keys and keyways, and projecting shaft ends, exposed to contact by workers must be guarded.

Before starting or using any tools, machinery or equipment, an employee must ensure that starting or using the tools, machinery or equipment will not endanger him or herself and/or another worker.

A worker must not intentionally remove, impair, or render ineffective any safeguard provided for the protection of workers, except as permitted by regulation. This must be authorized by Surerus management.

A fixed guard must not be modified to be readily removable without the use of tools.

7.37.4 General and Administrative Requirements

All paperwork sent to head office (e.g., timesheets, daily progress reports, accident/incident reports, expended purchase orders, etc.) will be initialled or signed by the appropriate supervisor.

Purchases are only by purchase order, which will clearly show job number, unit number, charge back, job coding, etc. and must be authorized by the supervisor or foreman.

NOTE: Timesheets are due at Surerus head office every Monday morning.

7.38 CONTRACTOR AND SUBCONTRACTOR MINIMUM REQUIREMENTS AND GUIDELINES

Contractors working for Surerus are and will remain independent contractors as to all work performed under the contract, unless specific contract arrangements have been agreed to by both the contractor and Surerus.

To be selected for work with Surerus a contractor must have a valid WCB account in the province in which the work is being conducted. The contractor's WCB rate must not exceed a 20% surcharge position. Contractors must have a safety program in place and provide a copy to Surerus for review. Those with a Certificate of Recognition will be given preference over those that don't. Safety training will be reviewed as part of the selection process.

The following are minimum requirements and expectations for contractors. The contractor will follow these and take any additional precautions necessary or proper under the circumstance to prevent injury or death to persons or damage to property and/or the environment.

- Contractors are expected to comply with applicable safety, health and environmental regulations of agencies having jurisdiction at locations where services are being performed for Surerus. Surerus will ensure that the contractor is aware of the Surerus Drug and Alcohol policy.
- Unless prior expressed contractual arrangements are made with Surerus, contractors are expected to provide their employees with appropriate functional safety equipment and ensure such equipment is used. In addition the contractor will maintain a functional safety program consistent with industry standards. If a contractor does not have a safety program Surerus leadership will ensure they are aware of the safety requirements for the job during the site specific orientation.
- Contractors are expected to provide their employees with appropriate safety, health and environment training as required by national, provincial, local or other applicable codes and regulations. In addition, the contractor will inform their employees of all Surerus policies, standards, rules, practices, and procedures. Contractors are expected to participate in all safety meetings, tailgate meetings and hazard assessments as appropriate for the job.
- Contractors are required to notify the appropriate Surerus representative or designate of contractor's/sub-contractor's employee accident(s) resulting in reportable injuries, damage to Surerus or third party's property or incident(s) with probable infractions of environmental protection regulations. Contractors will also furnish copies of regulatory, administrative, or statutory reports concerning environmental infractions or an accident, incident or occupational illness.
- Contractor safety, health and environmental performance will be evaluated and used as criteria in the selection of contractors for future projects.

Nothing contained in this guideline shall be interpreted to enlarge the legal duty of Surerus companies to the contractor, their agents, employees or subcontractors. This policy will be administered by each project through its line management.

7.39 PROGRESSIVE DISCIPLINARY GUIDELINES

7.39.1 Enforcement Procedures and Systems

Safety rules and proper work procedures shall be practiced and enforced; violations will be dealt with in a fair but firm manner. All employees shall be made aware of these requirements and held accountable. Re-orientation or retraining will be provided when needed.

The enforcement program is based on positive reinforcement. It will focus on recognizing safe work and correcting violations as soon as they are noticed. When violations are noticed, work shall be interrupted and the problem discussed with the worker. Reasons for violations will be assessed before corrective measures are used to correct or prevent recurrences. Enforcement of disciplinary action will apply to but is not limited to the following:

- Workers who intentionally work unsafely
- Workers who incur repeated safety infractions

In all cases, workers are given a first warning verbally, in orientation and safety meetings, where the discipline policy is discussed. Any subsequent infractions noted will be classified as an offence.

Depending on how serious the infraction is, discipline may include the following:

- a discussion with the worker
- a letter on personal file
- exclusion from incentive programs
- temporary suspension without pay
- job termination

When a safety infraction is noted, a written notice will be issued. These notices will remain in effect for one year from the date of issue. All penalties carry a one-year probation, beginning on the first day of return to work.

Failure to report damage to company vehicles, equipment or property will be cause for immediate dismissal.

7.39.2 Guidelines and Penalties

Type A

Offence	Penalty	Safety Infraction
First offence	Written warning	Failure to wear seat belt provided in any company owned, rented or leased vehicles and equipment. Working within the minimum distances from overhead high voltage energized electrical conductors. Riding on or in equipment where suitable seating and seat belts are not provided. Note: both the rider and the operator will receive notices. In possession of or under the influence of drugs or alcohol during working hours. In an excavation over four feet deep that is not adequately shored or sloped. Failure to perform a safety check and record in log book when using hoisting equipment. Operating company vehicles without valid driver's license. Working within two tree lengths of a tree being felled. The following are applicable to power saw operators only. Using domino falling procedures. Leaving cut up trees. Failing to take appropriate measures to control the fall of trees. This includes not leaving enough holding wood, not placing back-cut higher than under-cut, failing to use wedges or failing to have wedging equipment immediately available.
Second offence	Immediate suspension from project	

Type B

Offence	Penalty	Safety Infraction
---------	---------	-------------------

Offence	Penalty	Safety Infraction
First warning	Verbal warning in orientation and safety meetings	Failure to report accidents (employee or vehicle type).
First offence	Written notice of second warning.	Failure to wear personal protective equipment.
Second offence	Written notice of third warning and suspension for six months	Under a boom or any suspended load. Horseplay or fighting. Failure to use taglines to guide any suspended load. Riding on front or back of moving conveyance while stringing pipe. Between pipe and open ditch. Careless work habits: (e.g. hands or feet in pinch points, jumping off equipment, walking on pipe, in area of hoe swing, etc.). Careless or reckless operation of any vehicle or equipment.

Important: This list may not include all infractions included in occupational health and safety regulations. Other infractions not listed in these guidelines will be dealt with as they arise at the discretion of management.

7.39.3 Situations Where Superintendent or Immediate Supervisor is Responsible

Offence	Penalty	Safety Infraction
First warning	Verbal warning in orientation and safety meetings	Failure to provide and check regulation-approved bell holes prior to workers entering them.
First offence	Written notice of second warning	Failure to install support skids or dig basement to prevent accidental drop of pipe at tie-ins, where workers are required to work under pipe.
Second offence	Written notice of third warning and six-month suspension	Failing to fall snags or leaners along R.O.W. or access roads that are hazardous to workers and within reach of work areas, or allowing employees to work in proximity of snags. Failure to conduct and document tailgate meetings (minimum of one per day). Failure to erect adequate signs or barricades as required.

Immediate supervisors are responsible for ensuring that outside contractors have correct certification and abide by all Surerus safe work procedures, prior to operating on the company's jobsites.

Where an investigation of a written infraction to an employee shows negligence on the part of the employee's immediate supervisor, that supervisor will also receive a written infraction notice.

Important: This list may not include all infractions included in occupational health and safety regulations. Other infractions not listed in these guidelines will be dealt with as they arise at the discretion of management.

7.40 EMPLOYEE SELECTION AND PLACEMENT

Surerus insists that safety, quality, productivity and cost-effectiveness form the foundation of every project. To meet these basic requirements, employees must have the appropriate knowledge, skills, and attitudes to substantially reduce or eliminate accidents.

Employees will be selected and placed in positions according to their education, skills, attitude, work ethic, safe work habits, and safety training.

Hiring preference will be given to personnel with the following basic training:

- WHMIS
- Occupational first aid, level 1 or better
- H2S Alive
- Confined space entry
- Defensive driving
- G.O.D.I. (vehicles over 5500 kg. GVW)
- Heavy haulers course (vehicles over 15,000 kg. GVW)

7.41 FALL PROTECTION

A fall protection plan is required for each worksite when a fall of 10 feet (three metres) or more may occur, or where a fall from a lesser height involves an unusual risk of injury.

Guardrails or other similar means of fall restraint must be used when practicable. If the use of guardrails or other similar means of fall restraint is not practicable, another fall restraint system shall be used.

If the use of a fall restraint system is not practicable, a fall arrest system shall be used.

If the use of a fall arrest system is not practicable or will result in a hazard greater than if the system was not used, a control zone or safety monitor system with a control zone shall be used.

The supervisor on site must ensure that a worker on a boom-elevating work platform, boom-supported aerial device, or telescopic forklift truck work platform uses a personal fall arrest system.

A written fall protection plan must be prepared where a fall greater than 25 feet may occur, or when a safety monitor and control zone is used. The fall protection plan must be available before work with a risk of falling begins, and the plan must specify: the fall hazards expected in each work area; the fall protection system to be used in each area; the procedures to assemble, maintain, inspect, use and disassemble the fall protection system; and, the procedures for rescue of a worker who has fallen and is suspended by a personal fall protection system or safety net but is not able to effect self-rescue.

Workers shall be instructed in the fall protection system for the area and the procedures to be followed **before** they are allowed into the area where a risk of falling exists.

7.42 ANCHOR POINTS

Workers must ensure that anchor points to which a personal fall arrest system is attached have an ultimate load capacity of at least 22.2 kilonewtons per worker attached, in any direction in which the load may be applied. If a worker is unsure of where to anchor a personal fall arrest system they should contact their supervisor or the HSE Manager.

7.43 TRAINING

Workers are to be trained in the use of their fall arrest equipment and the fall arrest plan at Surerus. While there are very few situations where workers are exposed, training is important to ensure workers do not put themselves at risk unknowingly. The training will be provided by the HSE Manager or a recognized third-party trainer using the equipment common to Surerus. The HSE Manager will maintain training records in the Fort St. John office.

Equipment Standards

All fall protection equipment purchased for use at Surerus will meet the following standards.

All equipment identified for use in fall protection must be in compliance with the Alberta occupational health and safety code Part 9, B.C. WCB occupational health and safety regulations Part 11 and applicable CSA standards. All CSA requirements must be met.

- CSA Z259.10-M90 (R1998), Full Body Harnesses
- CSA-Z259.1-95, Safety Belts and Lanyards
- CSA-259.1-95 (R1999), Safety Belts and Lanyards
- CSA-Z259.11-M92 (R1998), Shock Absorbers for Personal Fall Arrest Systems
- CSA Standard Z259.12-01, Connecting Components for Personal Fall Arrest Systems (PFAS)
- CSA Z259.2.1-98 Fall Arresters, Vertical Lifelines and Rails
- CSA Z259.2-98, Self Retracting Devices for Personal Fall Arrest Systems
- CSA Z259.2.3-99, Descent Control Devices
- CSA-Z259.2.1-98, Fall Arrestors, Vertical Lifelines, and Rails
- CSA Z259.14-01, Fall Restrict

Equipment used in a fall protection system must be:

- inspected by a qualified person before use on each work shift;
- kept free from substances and conditions that could contribute to its deterioration; and,
- maintained in good working order.

After a fall protection system has arrested the fall of a worker, it must be removed from service, and not be returned to service until it has been inspected and recertified as safe for use by the manufacturer or its authorized agent, or by a professional engineer.

For more information

The foregoing represents general fall protection requirements. Refer to Part 11 of the *British Columbia Occupational Health and Safety Regulation* for details.

7.44 LADDERS AND CLIMBING DEVICES

Ladders are used for many applications at Surerus. They must be used and stored safely to avoid harm to people and property.

Surerus workers should not use a ladder to enter or leave an elevated or sub-level work area if the area has another safe and recognizable way to enter or leave it. Bell holes are a typical sub-level work area where ladders could be used, however, the preferred method is to cut a set of stairs into the bank of the hole.

Portable ladders are made of various types of materials such as wood, aluminum, and fibreglass. Surerus supervisors and workers must ensure that a portable ladder meets the requirements of CSA Standard CAN3-Z11-M81, ANSI Standard A14.1-2000, ANSI Standard A14.2-2000 or ANSI Standard A14.5-2000 dependant on the ladder to be used.

Wood ladders must never be painted to ensure that cracked or damaged rungs/steps or side rails are not covered up, thereby creating an unsafe condition.

Workers using portable ladders must ensure that the ladder is placed on a stable flat foundation and that the feet of the ladder are in good condition to provide traction on the foundation.

A worker must ensure that the side rails of a portable ladder extend at least one metre above a platform, landing, or parapet if the ladder is used as a means of access to the platform, landing or parapet.

LADDER SAFETY RULES

Introduction

To use ladders safely and effectively, employees must know the rules of ladder safety and observe them at all times.

Most falls from ladders, and resulting injuries, can be traced to using them in an unsafe manner. Employees must observe ladder safety rules to avoid serious injury to themselves and others.

While regulations require safe equipment be provided for use, it is the user's responsibility to **USE THE EQUIPMENT SAFELY**.

General safety rules for all ladders

Ladder safety begins with the selection of the proper ladder for the job and includes inspection, set-up, proper climbing and standing, care, and storage. In addition to the general safety rules for all ladders there are special rules for using stepladders and for single and extension ladders.

These safety rules are a combination of safety regulations and proven common sense procedures. This combination of safe equipment and its safe use can eliminate most ladder accidents.

Ladder Selection

1. Be sure the ladder has the proper duty rating to carry the combined weight of the user and the material being installed.
2. A ladder's duty rating is its maximum weight capacity. There are four categories of duty ratings:

Type IA These ladders have a duty rating of 300 pounds. Type IA ladders are recommended for extra-heavy-duty industrial use.	Type I These ladders have a duty rating of 250 pounds. Type I ladders are manufactured for heavy-duty use.
Type II These ladders have a duty rating of 225 pounds. Type II ladders are approved for medium-duty use.	Type III These ladders have a duty rating of 200 pounds. Type III ladders are rated for light-duty use.

3. **Type IA and Type I ladders are the only acceptable ladders on a construction jobsite.**
4. The American National Standards Institute (ANSI) requires that a duty-rating sticker be placed on the side of every ladder so users can determine if they have the correct type ladder for each task/job.
5. Be sure that metal steps and rungs are grooved or roughened to prevent slipping.

Use the proper size ladder for the job. The average worker will generally work most comfortably at shoulder level, which is about five feet above where he stands. Since the worker must stand at least two feet down from the top of a ladder, the maximum working height would be about three feet above the top of the ladder.

For example, a five-foot stepladder would give an effective working height of eight feet, or five feet (shoulder level) plus three feet (above the top of the ladder). When using straight or extension ladders, the worker stands three feet down from the top, which gives an effective working height of two feet above the ladder top.

Ladder Inspection

1. Always check a ladder before using it. Inspect wood ladders for cracks and splits in the wood. Check all ladders to see that steps or rungs are tight and secure. Be sure that all hardware and fittings are properly and securely attached. Test movable parts to see that they operate without binding or without too much free play. Inspect metal and fiberglass ladders for bends and breaks.
2. Never use a damaged ladder. Tag it "defective" and report it to the supervisor so that it may be removed from the job.

Ladder Setup

1. Place ladder feet firmly and evenly on the ground or floor. Make sure the ladder is sitting straight and secure before climbing it. If one foot sits in a low spot, build up the surface with firm material.
2. Do not try to make a ladder reach farther by setting it on boxes, barrels, bricks, blocks or other unstable bases.
3. Do not allow ladders to lean sideways. Level them before using.
4. Brace the foot of the ladder with stakes or place stout boards against the feet if there is any danger of slipping.
5. Never set up or use a ladder in a high wind, especially a lightweight metal or fiberglass type. Wait until the air is calm enough to ensure safety.
6. Never set up a ladder in front of a door unless the door is locked or a guard is posted.
7. Do not use ladders on ice or snow unless absolutely necessary. If they must be used on ice or snow, use spike or spur-type safety shoes on the ladder feet and be sure they are gripping properly before climbing.
8. Use Safety shoes on ladder feet whenever there is any possibility of slipping.
9. The ladder must be secured against movement while in use.

Ladder Climbing and Standing

1. Keep the steps and rungs of ladders free of grease, oil, wet paint, mud, snow, ice, paper and other slippery materials. Also clean such debris off your shoes before climbing a ladder.
2. Always face a ladder when climbing up or down. Use both hands and maintain a secure grip on the rails or rungs.
3. Never carry heavy or bulky loads up a ladder. Climb up yourself first, and then pull up the material with a rope.
4. Climb and stand on a ladder with your feet in the centre of the steps or rungs.
5. Do not overreach from a ladder, or lean too far to one side. Overreaching is one of the most common causes of falls from ladders. A good rule is to always keep your belt buckle inside the rails of a ladder. Work as far as you can reach comfortably and safely, then move the ladder to a new position.
6. Never climb onto a ladder from the side, from above the top or from one ladder to another.
7. Never slide down a ladder.

Proper Use of Ladders

1. Never use metal ladders around exposed electrical wiring. Metal ladders should be marked with tags or stickers reading "CAUTION: Do not use around electrical equipment" or similar wording. A good rule of thumb is: If the overhead power line is 50 kV or less, then stay at least 10 feet away. For everything else, keep at least 35 feet away.
2. When using a ladder where there is traffic, erect warning signs or barricades to guide traffic away from the foot of the ladder. If this is not possible, have someone hold and guard the bottom of the ladder.
3. Do not try to move a ladder while you are on it by rocking, jogging or pushing it away from a supporting wall.
4. Never use a ladder when under the influence of alcohol, on drugs or medication, or in ill health.
5. If you get sick, dizzy or panicky while on a ladder, do not try to climb down in a hurry. Wait. Drape your arms around the rungs; rest your head against the ladder until you feel better. Then climb down slowly and carefully.
6. Do not leave tools or materials on top of ladders. If they fall on you, you can be hurt. If they fall on someone else, your company can be sued.
7. Never push or pull anything sideways while on a ladder. This puts a side load on the ladder and can cause it to tip out from under you.
8. Allow only one person at a time on a ladder unless the ladder is specifically designed for two people.
9. Never use a ladder as a horizontal platform, plank, scaffold or material hoist.
10. Be cautious about homemade ladders. Never use ladders made by fastening cleats across a single narrow rail, post or pole.
11. Never use a ladder on a scaffold platform. If you need to reach higher, the scaffold should be higher.

Proper Ladder Care and Storage

1. Maintain ladders in good condition.
2. Keep all ladder accessories, especially safety shoes, in good condition.
3. Wood ladders, which are to be used outside, should be treated to prevent weather damage. A clear finish or transparent penetrating preservative should be used. Linseed oil is a good treatment for a wood ladder, although it does add some weight to the ladder. An oil treatment also helps to rustproof the metal parts of a wood ladder.
4. Never paint a wood ladder. This will cover dangerous cracks or fill and hide them.
5. Never sit on ladder side rails.
6. Never use a metal or fiberglass ladder that has been exposed to fire or strong chemicals; it should be discarded.
7. Never store materials on a ladder.
8. Store wood ladders where they will not be exposed to excessive heat or dampness. Store fiberglass ladders where they will not be exposed to sunlight or other ultraviolet light sources.
9. Be sure that ladders are properly supported and secured when in transit. Vibration and bumping against other objects can damage them.

10. Store ladders on racks, which give them proper support when not in use.

Additional Safety Rules for Stepladders

1. Never use a stepladder over 20 feet long.
2. Always open a stepladder completely and make sure the spreader is locked open before using the ladder.
3. Never substitute makeshift devices of wire or rope for stepladder spreaders.
4. Do not stand higher than the second step from the top of a stepladder. Never stand or sit on the top cap, pail shelf, or on the back of a stepladder.
5. Do not straddle the front and back of a stepladder.

Additional safety rules for single and extension ladders

Ladder Selection and Inspection

1. The sections of an extension ladder should overlap enough to retain the strength of the ladder using the following table:

Length of Ladder	Required Overlap
up to 36 feet	3 feet
37 to 48 feet	4 feet
49 to 60 feet	5 feet

2. Keep in mind the usable length of the ladder is shortened by the amount of the overlap.
3. Never splice or tie two short ladders together to make a long section.
4. Top support for a ladder is as important as good footing. The top should rest evenly against a flat, firm surface. If a ladder is to be leaned against roof gutters, the strength and stability of the gutters should first be tested.
5. When a ladder is used for access to an upper landing surface, it must extend three rungs, or at least three feet above the landing surface.
6. A ladder used for access to an upper landing surface should be secured against sideways movement at the top, or held by another worker whenever it is being used.

Ladder Climbing and Standing

1. Never stand on the two top rungs of a straight or extension ladder.

Proper Ladder Care and Storage

1. Metal bearings of extension ladder rung locks and pulleys should be lubricated periodically, and between regular maintenance periods whenever necessary.
2. Ropes on extension ladders should be in good condition. If they become frayed or badly worn, replace them.

Setting Up a Straight or Extension Ladder

It is very important to learn the proper methods for setting up ladders. Improper set-up can cause damage to the ladder and excessive physical strain on the user.

1. Lay the ladder on the ground with the base resting against the bottom of the wall and the top pointing away from the wall.
2. Starting at the top of the ladder, lift the end over your head and walk under the ladder to the wall, moving your hands from rung to rung as you go.
3. When the ladder is vertical, and the top touches the wall, pull out the base so that the distance away from the wall is about one-fourth of the height to the point of support.
4. Reverse this process to take down the ladder. Remember that you will be walking backwards, so check for obstacles in your path before starting. Also be careful to lower the ladder slowly so that you can keep it under control and prevent its falling on you.
5. Extend an extension ladder only from the ground. Determine the needed height, extend and lock the fly section securely in place, then set it up against the wall. Check for stability and support before climbing.
6. If possible, the base of a long ladder should be secured to the ground and the top should be tied to the upper landing surface.
7. The technically proper angle for a non-self-supporting ladder is about 75 degrees above horizontal. This means that the base should be set out one-fourth of the ladder's height to its top support point. For example, if a ladder is to be supported at a point 20 feet off the ground, its base should be set five feet out from the wall ($20 \text{ feet} / 4 = 5 \text{ feet}$). An easy way to measure this, if the ladder top will rest against the wall, is to pace off the length of the ladder or count the rungs, and divide by four to get the proper distance from the wall for placing the foot of the ladder.
8. If ladders are set up at a steeper angle than 75 degrees above horizontal they are more likely to tip backward in use. As a minimum they must be tied off at the top to prevent this from happening.
9. If ladders are set up at an angle less than 75 degrees above horizontal they are more likely to slide out from the bottom. Safety ladder shoes or base tying is a must in this case.
10. The distance from the foot of a ladder to the wall should never be more than one-half the height to the support point, an angle of about 63 degrees above horizontal. Otherwise, more strain will be put on the side rails than they are designed to carry.

7.45 FIRE PROTECTION

The best means of fighting fire is fire prevention. If a fire should occur, workers should know how to bring it under control and how to evacuate personnel. Employees must also know the location of the various fire extinguishers, the type of fire extinguisher to be used and how to use it.

When a fire occurs, a supervisor must be notified immediately and, where appropriate, fellow workers should be sought to help fight the fire. Personnel not engaged in extinguishing the fire or other emergency work should stay away from the danger area unless told otherwise.

Fire equipment sufficient to handle fire emergencies shall be supplied, maintained and accessible at all times. Hanging clothes on, stacking of material in front of, or obstructing access to such equipment is prohibited. Aisles, passageways, stairways and doorways must never be blocked.

Other than for the extinguishing of fires, fire-extinguishing equipment shall not be removed from its fixed position without the permission of the supervisor. When fire extinguishers are removed for maintenance or any other purpose, an extinguisher in good working order shall be left in its place.

Flammable liquids are to be stored only in special storage areas. When small quantities of flammable liquids must be kept inside buildings, approved safety cans shall be used.

If a hand-carried extinguisher is used for some reason or the seal is broken, this should be reported at once to the supervisor so that the extinguisher may be recharged or replaced and put back in service.

Motor vehicles may only be refuelled at designated sites or from designated equipment: the motors of such vehicles must be turned off. If a spill occurs, the workers must clean it up using the spill kit provided before starting the vehicle.

When flammable liquids, e.g. gasoline and methanol, are being transferred from one container to another the containers shall be in firm contact with each other or be bonded throughout the transfer, to prevent accumulation of static electricity that could cause ignition of the flammable liquids.

All Surerus mobile equipment including welding trucks and pick up trucks must be equipped with a 20 pound low temperature dry chemical fire extinguisher.

7.45.1 Forest Practices Code of British Columbia

Fire season regulations apply from April 1 to October 31 of each year and the regulations apply to persons and industrial activities within 300 meters of a forest. Every project supervisor is responsible for monitoring fire conditions and ensuring that adequate tools and equipment are available for forest fire fighting emergencies. The project supervisor is also responsible for ensuring that the equipment operating on the jobsite has adequate tools installed in compliance with the British Columbia *Forest Practices Code*. Project supervisors must monitor the fire danger class (DGR) daily

during the fire season and comply with the requirements of Schedule 5 of the *Forest Practices Code* regarding fire watch, early shift and/or cease activity if necessary.

For more information

Jobsite fire protection and regulated requirements are covered under the *B.C. Ministry of Forests and Range, Forest Practices Code, Forest Fire Prevention and Suppression Regulation 169/95*.

7.46 FIRST AID

Accident prevention is paramount; however, in case of an incident or other injury to a worker, first aid kits are located in various areas of the jobsite.

First aid attendant authority and responsibility

The first aid attendant shall be in complete charge of all first aid treatment of injured workers until medical aid is available. The decision of the first aid attendant relating to first aid and the need for medical attention shall not be over-ruled by supervisory personnel. The first aid attendant shall make the decision whether an injured worker should be transported by air or ground transportation to the nearest hospital or other place of medical treatment. The first aid attendant shall, if they deem it necessary, accompany an injured worker being transported to medical aid.

Project superintendent responsibilities

The project superintendent is responsible for:

- Providing adequate first aid for employees
- Ensuring that the record book is kept up to date by the designated first aid attendant as required by the *BC Occupational Health and Safety Regulation 33.6*
- Ensuring that all employees under his/her control are made aware of the location of the first aid kit and equipment, the location and name of the first aid attendant, and how to summon their assistance in the event of an emergency
- Checking first aid kits periodically and restocking as required

Employee responsibilities

All employees shall:

- Know locations of first aid kits in work areas
- Know locations of emergency eye wash stations
- Update the record book when first aid kit supplies are used
- Notify the project superintendent if the first aid kit requires restocking

7.47 HEAD AND FACIAL HAIR

Workers on a jobsite or workplace who may be required to wear respiratory protective equipment that is dependent on an effective facial seal must be clean-shaven where the face piece of the equipment seals with the skin of the face. See *BC Occupational Health and Safety Regulation*, section 8.39 (2).

Where there is a danger of contact with moving machine parts or a source of ignition, hair on the head and/or facial hair shall be confined or worn at a length that will eliminate the danger of snagging or catching in moving parts, or catching fire from a spark or other ignition source. See *BC Occupational Health and Safety Regulation*, section 8.10 (2). This standard does not prohibit any particular hairstyle. Its purpose is to ensure that long hair, which could be snagged or ignited, is confined. The permitted length will be based upon the job site supervisor or HSE Manager's evaluation of the hazards and circumstances.

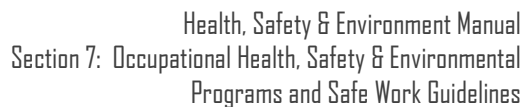
7.48 HOT WORK

Hot work is one of the most critical operations due to the danger of fire and explosion, the numerous other operations that can occur simultaneously, and the limited area in which such work can be performed. Hot work is defined as cutting, welding, burning, grinding or use of a torch.

The following procedure specifies the minimum requirements for any hot work.

- All welding and burning equipment shall be inspected prior to beginning any welding or burning.
- Welding leads shall be completely insulated and in good condition.
- Oxygen and acetylene bottles shall be secured in a safe place and hoses shall be leak-free and equipped with proper fittings, gauges, and regulators. A flashback arrester (check valve) shall be installed in both the oxygen and acetylene lines to ensure that the gases do not back up into either regulator.
- Always purge hoses and torches when a cylinder is connected.
- Hoses should not be hung or piled close to the cylinders when in use. This could hinder closing cylinder valves in case of fire.
- A torch lighter shall never be carried into an area containing combustible gas.
- Arc welding machines shall be located in places free of combustible vapours.
- Grounding of arc welding machines shall be made as close as possible to the point of operation.
- Cutting torches and welding equipment shall be used on the job only by personnel designated by supervision.
- Shields worn by the welder should incorporate hard hat protection.
- Persons in the vicinity of welding should never look directly or indirectly at the welding arc without protective goggles.
- Special caution shall be exercised in welding or burning of bronze, brass, galvanized iron, cadmium plating, other alloys or painted piping that might produce harmful fumes and poisoning. Adequate ventilation shall be provided while the work is in progress.
- It is prohibited to cut or weld on steel drums that at one time contained flammable liquids or gases.
- Whenever possible welding shall be performed on all new structures or equipment before it is moved to the field in order to keep the amount of welding and burning in the field to a minimum.

All other requirements and regulations regarding radiation protection, protective clothing and equipment, respiratory protection and fire extinguishers can be found in the *BC Occupational Health and Safety Regulations*, sections 12.112 to 12.126.



Prior to the commencement of any welding fabrication, the supervisor responsible for welding activities shall ensure that welders are tested and qualified to perform each welding procedure to be used.

Designated safe hot work areas do not require a hot work permit. The following conditions shall be met to designate a safe hot work area:

- ## Hot Work Permits

- Danger from fire and explosion exists
- The atmosphere could become or is in excess of the threshold limit value
- Excavation or trench that is near existing live line, cable or conduit
- There is a danger from electricity including static charges
- All confined space entries

-
-
-
-

- NOTE: • Any other circumstances require a hot work permit.

7.49 HOUSEKEEPING

7.49.1 Good Housekeeping Practices

Good housekeeping is a basic part of accident and fire prevention and is more than cleanliness, it is tidiness and order. Slips, trips and falls continue to be one of the leading causes of injuries at work.

Surerus employees must cultivate good housekeeping habits, which shall be maintained by observing the following practices:

- All working areas shall be kept clean and free from obstructions at all times.
- Working areas shall be left clean and tidy on the completion of work assignments and at the end of each shift.
- Materials shall not be stored in aisles or walkways.
- Materials shall not be stored in electrical control or panel rooms.
- Equipment and tools shall not be left on stairways.
- Any spillage or leaks must be reported to the supervisor for immediate clean up.
- All exits must be clear of obstructions.
- All fire extinguishers must be unobstructed for ease of use.
- Waste, rags, trash, etc. are to be placed in proper receptacles provided.
- All substandard conditions must be reported immediately.
-
-

• NOTE:	• A job is not complete until the clean-up is done.
---------	---

-

7.50 LOCK OUT/ZERO ENERGY

- Only persons designated by management are authorized to lock out or render energized equipment located in Surerus' shops or yard to a zero energy state.
- If machinery, equipment, or powered mobile equipment is to be serviced, repaired, tested or adjusted, workers must follow the procedure to ensure that no work is performed on the machinery, equipment, or powered mobile equipment until it has come to a complete stop. The equipment must have any hazards removed and rendered safe and inoperative in a manner that prevents its accidental reactivation, and provides equal or greater protection than the protection afforded by lock out tag.
- Supervisors are responsible for ensuring that the workers under their supervision are trained in the lock out methods prescribed by Surerus.
- These authorized employees must follow the written lock out procedures posted during all maintenance and repairs.
- All authorized employees **must cut off the power supply** at the main manual control switch and place their personal lock on that control **prior** to certified technicians performing any maintenance or repairs on power actuated machinery or equipment.
- Authorized employees must only use locks assigned to them and inscribed with their name.
- Combination locks are not to be used as a locking device.
- Employees must not borrow another person's lock, nor allow another person to borrow their assigned locks.
- The person applying the first lock is responsible for immediately testing the locked out machinery or equipment to ensure that it cannot be operated.
- Employees must remove their own lock when the maintenance procedure is complete. **Employees are forbidden to remove locks belonging to other employees.**
- **If the lock out goes into the next shift, the supervisor and worker must sign over the lock out process to the next shift in writing. If a worker's lock has been removed then he or she must be notified before the beginning of their shift.**
- The removal of the last lock from a locked out switch is a serious act. **Prior** to removing the last lock, the person is responsible for ensuring that the machinery or equipment can be operated safely and that **all persons are clear**.
- All outside contractors working for Surerus shall follow Surerus' lock out procedures and shall use Surerus' locks provided by designated employees.
- The person hiring the contractor is responsible for ensuring that Part 9 is followed.
- Surerus administration shall ensure that a list of machinery and equipment showing the specific lock out procedures for each piece of equipment, and the corresponding written lock out procedures, are maintained and are available to all employees.

- If deemed necessary and agreed on by management, additional personnel may be issued locks, and/or selected machinery or equipment may become **“lock out mandatory.”** Should either arise, updated lists will be posted immediately.
- If an emergency situation occurs, or if the worker who attached the lock is not available when required to remove it, a worker designated by Surerus (typically a supervisor or crew leader) may remove the lock in accordance with a procedure that includes verifying no workers will be in danger due to removal of the lock.

•

The application of a lock is not required if:

- The energy isolating device is under the exclusive and immediate control of the worker at all times while working on the machinery or equipment, or
- A tool, machine or piece of equipment that receives power through a readily disconnected supply, such as an electrical cord or quick release air or hydraulic line, is disconnected from its power supply and its connection point is kept under the immediate control of the worker at all times while work is being done.
- If it is not practicable to shut down machinery or equipment for maintenance, only the parts that are vital to the process may remain energized and the work must be performed by workers who:
 - Are qualified to do the work,
 - Have been authorized by management to do the work, and
 - Have been provided with and follow written safe work procedures.

Authorized lock out designates

Following is a list of Surerus employees who are authorized to lock:

- • Carmen LaFrance, Operations Manager
- • Leverne Artemenko, Shop Foreman

Lock out mandatory equipment

Following is a list of equipment located in Surerus' shops that are required to be locked out prior to any maintenance or repairs. It is imperative that zero energy is established and proven before work can commence on the locked out equipment.

High pressure washer	main shop
Overhead crane	main shop, welding shop
Air compressor	main shop, welding shop

Field Zero Energy Guidelines

Surerus field supervisors must have a procedure to ensure that piping containing harmful substances under pressure has an isolation system of blanking or blinding, or a double block and bleed isolation system providing two blocking seals with an operable bleed-off between the two seals.

Typically the client will prepare the piping systems for safe work; however, there are circumstances where Surerus employees must prepare piping systems for work such as welding or dismantling.

In all cases a hazard assessment must be conducted and documented using the Field Level Hazard Assessment document. When the client has prepared the system for work, the Surerus supervisor must review the safe work permit with all affected workers to ensure everyone is aware of the potential hazards and controls.

Group Lock Out/Zero Energy Guidelines

When multiple workers are involved or multiple energy isolating devices must be secured, a group process can be used.

The Surerus supervisor is responsible for placing the energy isolating devices. Another designated worker must then place a securing device (typically a keyed padlock) on each energy-isolating device. The supervisor will put the key to each securing device in a lockable key securing device (lock box, key ring, etc.) and apply his or her personal lock. The supervisor then must complete, sign, and post a list identifying the machinery or equipment included in the zero energy procedure.

Once the supervisor has installed the locking devices a second worker, designated by the employer, must confirm that all energy sources in the group lock out situation are effectively isolated.

The purpose of the second worker's action is to verify that all energy sources that could cause injury due to unintended motion, energizing, start-up or release of residual energy are effectively isolated.

Verification may be achieved by testing circuitry, attempting to cycle machinery, visual inspection, monitoring movement or discharge, observing bleeds, gauges or indicators, or other equally effective approaches. The approach used should offer the best degree of assurance that isolation has been achieved.

The second worker is not confirming that the first worker physically placed the locks in the correct location, but making sure that the placement of the locks has resulted in the energy sources being effectively isolated. Having a second worker confirm that locks are physically placed in the correct locations is not the same as verifying that all energy sources are effectively isolated.

Once effective isolation has been verified and before starting the work activity, each worker involved in the work then applies his or her own lock to the key-securing device. This ensures that the master key(s) cannot be removed from the key-securing device

until each worker removes his or her personal lock. This prevents the equipment from being returned to operation until each personal lock is removed.

In the case where a worker is re-assigned before the work is completed, or the work is extended from one shift to another, continuity of hazardous energy control must be maintained. This is accomplished by a transfer of control of the initial worker's lock to another worker who is typically designated by the employer for this purpose. This transfer must be documented and signed by both workers involved in the transfer.

Upon completing the work, each worker removes his or her lock from the key-securing device. When the last lock is removed, the worker authorized by the employer to do so then removes his or her lock from the energy-isolating device and verifies that no worker will be in danger due to removal of the lock.

If an emergency situation occurs, or if the worker who attached the lock is not available when required to remove it, a worker designated by the employer (typically a supervisor or crew leader) may remove the lock in accordance with a procedure that includes verifying no workers will be in danger due to removal of the lock.

The written group lock out procedure must be conspicuously posted at the place where the system is in use.

7.51 OFFICE SAFETY

Injuries and accidents in the office are just as painful and costly as those at jobsites. The office is to be kept safe and employees should know the proper escape routes in an emergency.

Electrical Cords

To avoid a fire hazard, ensure that all electrical cords are in good condition and not overloaded; any worn cords should be repaired or replaced immediately. Do not run any electrical or telephone cords across aisles or walkways. Never pull a cord from the wall socket by yanking on the cord; pull the plug instead.

Fans

Use only fans with wire mesh safety guards that completely cover the fan blades. Never remove the guards.

Filing and Storage Cabinets

To prevent cabinets from tipping over:

- Bolt cabinets together side by side or to support walls.
- Do not overload the top shelves when using filing or storage cabinets.
- Open drawers one at a time so as not to unbalance the cabinet.
- Close the drawers when they are not being used.
- Use the handles for closing drawers to prevent pinched fingers.
- Do not struggle with firmly stuck drawers or doors, to avoid hurting your back or having the drawer pull loose and drop on your foot.

Fire Precautions

Employees should know where all fire fighting equipment is in the office, and which type of extinguisher to use on fires of various materials. Also, ensure that the extinguishers are properly maintained. Know the escape routes to take in the event of a fire and how to contact the fire department for assistance.

Flammable Materials

Never use flammable cleaning fluids, such as gasoline, varsol, or naphtha in an office. Keep any flammable materials in approved, labelled containers. Never leave the containers uncapped.

Floors and Aisles

There are many possible ways to slip and trip in an office. To prevent tripping and slipping:

- Keep floors and aisles free of debris and storage boxes.
- Use aisles to move around the office; do not take short cuts between desks.

- While walking around, do not obstruct your view by reading or carrying oversized loads.
- Watch for slippery surfaces.

Ladders

When using a ladder in storage rooms:

- If the ladder is a step ladder, ensure it is fully spread open on the ground before beginning to climb.
- Do not stand on the top two steps of the ladder.
- Do not reach to the side when on a ladder; instead, get down and move the ladder.

Lifting

Always use proper lifting techniques to protect your back or get help with the lift if it is too heavy.

Paper Cutters and Shredders

After using paper cutters, close the blade. When using the paper shredder, be very careful not to catch jewelry, ties, clothing or long hair in the blades.

Smoking

Restrict smoking to designated areas only and comply with all “no smoking” areas.

Stairways and Walkways

Avoid slipping and tripping hazards by:

- Never leaving or storing objects on stairways or walkways.
- Picking up debris and wiping up spills immediately.
- Reporting unsafe conditions.
- Holding the handrail when using stairs.

Wastepaper Baskets

When disposing of glass or sharp-edged cans in the wastepaper basket, place them first in a paper bag and mark the contents clearly. Never place these objects loose in the container.

7.52 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The following will be observed and practiced by the company and employees when the company undertakes any job or contract:

- All employees will wear CSA-approved safety glasses, CSA Grade 1 (green triangle) boots, long trousers, six inch sleeve shirts minimum and long sleeve shirts where needed, CSA approved hard hats and any other specialty personal protective equipment required for the job site. Guests and visitors will be provided personal protective equipment.
- Workers are responsible for providing clothing needed for protection against the natural elements, including safety footwear and general purpose work gloves.
- Surerus will provide the worker with appropriate safety headgear, safety glasses and any specialty PPE item needed to safely perform his or her job.
- All personal protective equipment used by this company will be within the requirements of occupational health and safety regulations and CSA standards.
- All personal protective equipment used by this company will be maintained in accordance with manufacturer's instructions and requirements.
- Company-issued personal protective equipment will be inspected at time of issue and before each use by the employee using the personal protective equipment.
- All personal protective equipment that is of questionable reliability, damaged, or in need of service or repair will be removed from service immediately.
- All personal protective equipment that has been removed from service will be tagged "**OUT OF SERVICE**" or discarded. Any personal protective equipment taken out of service will not be returned to service until repaired and inspected by a qualified person.
- The company will retain appropriate inspection and service logs for specialty personal protective equipment.
- Personal protective equipment will not be modified or changed contrary to manufacturer's instruction/specifications or occupational health and safety regulations.
- Personal protective equipment must be assessed to ensure that it does not endanger the worker using it.
- The PPE program will be reviewed on a yearly basis during the safety audit process.
- Surerus workers will be trained in the use and care of the PPE they are expected to use in the course of their duties. The orientation will cover the correct use, limitations and assigned maintenance duties for the equipment to be used.

The following is a list of PPE and its application:

Personal Protective Equipment

Use

Burning goggles	Oxy-acetylene welding, burning or cutting
Chainsaw pants	Working with chainsaws
Chemical goggles	Mixing hazardous chemicals that may splash or leak
Chemical suits and/or aprons	Mixing corrosive chemicals
Cold weather clothing	Working in extreme weather conditions
Dust masks	Working around heavy concentrations of dust and other airborne particles
Face shields	Handling corrosive chemicals, inspecting fire boxes, working on pressurized equipment, using high-pressure water, arc welding, or performing any operation that may put the face at risk from flying objects, extreme temperatures, splashed acid or caustic substances
Fire-retardant clothing	Working in areas with potential for explosion or flash fire as defined by occupational health and safety regulation
Gloves	Handling sharp objects, chemicals, hot or cold objects, or ropes and cables
Hard Hats	On all worksites where overhead hazards exist
Hearing protection	Working at sites with noise levels greater than legislated limits for unprotected exposure
High visibility vests	Working with traffic, traffic hazard or around mobile equipment
Hoods	Sandblasting, handling caustic acid, or shutting off ruptured caustic or acid lines

SCBA respiratory protective equipment	When there is potential for exposure to oxygen deficiency or toxic gases exceeding regulated exposure limits
Safety belts, lanyards and lifelines	Working from swinging scaffolds, boatswain's chairs suspended cages, or at heights specified by occupational health and safety regulation
Safety goggles	Welding, cutting, drilling, grinding or performing any operation with potential exposure to chemical splash or leak, flying objects, or excessive heat or light
Safety helmets	Riding all-terrain vehicles or snowmobiles
Safety-toed footwear	Where feet are at risk from falling objects or other hazards at field sites.

Refer to *BC Occupational Health & Safety Regulations*, Part 8 for details on Personal Protective Equipment.

Eye and Face Protection

A worker's eyes are his/her most precious possession. Wearing the proper type of eye protection, such as goggles, safety glasses, and face shields, can prevent eye injury.

As a general rule, goggles must be worn when striking metal or frozen ground.

Hoods or welder's goggles must be worn when working at or around any welding operation and industrial safety glasses should be worn under welding hoods.

Workers are required to protect their eyes by following safe practices and wearing safety eyewear or face shields when:

- exposed to severe eye hazards such as handling injurious chemicals
- working on any grinding or chipping operations where particles or materials may drip or blow into the eyes.

Properly fitting safety eyewear appropriate to the conditions of the workplace must be worn if a worker:

- has 20/200 or less vision in either eye
- is blind in either eye
- is working on or testing electrical equipment energized at a potential greater than 30 volts
- is handling or exposed to materials that are likely to injure or irritate the eyes

Prescription safety eyewear must meet the requirements of CSA Standard CAN/CSA-Z94.3-92, "Industrial Eye and Face Protectors."

Lenses

Bifocal and trifocal glass lenses must not be used if there is danger of impact, unless they are worn behind impact-rated goggles or other acceptable eye protection. If the use of polycarbonate or plastic prescription lenses is impracticable, due to the conditions of the workplace, and there is no danger of impact, workers may use prescription lenses made of treated safety glass meeting the requirements of ANSI Standard Z87.1-1989, "Practice for Occupational and Educational Eye and Face Protection."

Adequate precautions must be taken if a harmful substance or condition may adversely affect a worker wearing contact lenses. A worker wearing contact lenses should inform his/her supervisor or first aid attendant so that they can be safely removed should an accident occur.

Face protection

Safety eyewear must be fitted with side shields when necessary for the safety of the worker. If there is a risk of face injury, suitable face protection must be worn. Face protectors and non-prescription safety eyewear must meet the requirements of CSA Standard CAN/CSA-Z94.3-92, "Industrial Eye and Face Protectors," ANSI Standard Z87.1-1989, "Practice for Occupational and Educational Eye and Face Protection."

Foot Protection

Safety footwear is designed to protect against foot injuries in the workplace, and to protect against compression, puncture injuries, and impact.

Safety footwear is divided into three grades that are indicated by coloured tags and symbols. The tag colour indicates the amount of resistance the toe will supply to different weights dropped from different heights.

The symbol indicates the strength of the sole. For example, a triangle means puncture-resistant sole, able to withstand 135 kg (300 lbs) of pressure without being punctured by a five-centimetre (two-inch) nail. In HDD construction, **it is recommended that only the green triangle grade of footwear**, which also gives ankle support, be worn.

The choice of footwear should always exceed what is required for protection; "over protect rather than under protect." To use the protective footwear properly, remember the following:

Choose footwear according to job hazards and CSA standards. The foot wear must meet the following standard CSA Standard CAN/CSA Z195- M92 (R2000), "Protective Footwear," or CSA Standard Z195-02, "Protective Footwear."

- **Lace up boots and tie them securely;** boots do not protect if they are a tripping hazard or if they fall off.
- Use a waterproof, protective boot "dressing" to help the boot last longer, and provide greater water resistance (wet boots conduct electrical current).
- **Choose a high cut boot** to provide ankle support.

- Do not wear defective safety footwear (i.e., exposed steel toe caps).
- **Never** choose under-protective safety footwear, or modify safety footwear.

Head Protection

Safety headgear is designed to protect the head from impact with falling objects, bumps, splashes from chemicals or harmful objects and equipment, as well as contact with energized objects and equipment.

In construction, the recommended type of protective headgear is the **Class B hard hat**, which has the required “dielectric strength.” There are many designs, but they must all meet the CSA requirements for Class B industrial head protection.

Head protection is usually made up of two parts:

- the shell (light and rigid to deflect blows)
- the suspension (to absorb and distribute the energy of the blow)

Both parts of the headgear must be compatible and maintained according to manufacturer’s instructions. If attachments are used with headgear, they must be designed specifically for use with the type of headgear used.

Proper care is required for headgear to perform efficiently. The service life is affected by many factors, including temperature, chemicals, sunlight and ultraviolet radiation (welding). The usual maintenance for headgear is simply washing with a mild detergent and rinsing thoroughly.

Also be sure to take note of the following:

- **Replace** headgear that is pitted, holed, cracked or brittle, or which has been subjected to a blow, even though damage cannot be seen.
- **Remove** headgear from service if its serviceability is in doubt.
- **Replace** headgear and its components according to manufacturer’s instructions, or once a year.
- **Do not** drill, remove peaks, or alter the shell or suspension in any way.
- **Never** use solvents or paints on the shells, as they cause shell material to deteriorate.
- **Do not** put chin straps over the brims of Class B headgear.
- **Do not** use any liner that contains metal or conductive material.
- **Never** carry anything in the hard hat while wearing it.

Fire Retardant Clothing

Surerus workers that may be exposed to a flash fire or electrical equipment

flash over must ensure that they wear flame resistant outerwear and use other protective equipment appropriate to the hazard.

Workers must ensure that clothing worn beneath flame resistant outerwear and against the skin is made of flame resistant fabrics or natural fibers that will not melt when exposed to heat.

There are many projects where Surerus employees are potentially exposed to flash fire conditions. Flammable atmospheres are always possible when working in the oil and gas industries.

Working in and around well sites and pressurized pipelines are just two of the many environments where flash fire potential exists. Workers must always perform a Field Level Hazard Assessment to determine the hazards associated to their tasks.

As a minimum the fire retardant work wear must meet the following standards:

1. CAN/CGSB 155.20 – 2000, “Work Wear for Protection Against Hydrocarbon Flash Fire”
2. NFPA, 2112-2001, “Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire”

Some of the fire retardant garments acceptable to Surerus include, but are not limited to, the following:

- Endura
- Carhardt
- Nomex
- Pro-Ban
- Helly Hanson

Limb and Body Protection

Due to the nature of the construction workplace and the large number of different hazards, it is not possible to cover all specialized limb and body protection in detail. This wide variety of work hazards are known as “job exposures” (exposure to fire, extreme temperatures, body impacts, corrosives, molten metals, cuts from sharp or abrasive materials, etc.).

Limb and body protection includes items such as:

- Leg, arm, chin and belly guards
- Specialty hand pads and grips
- Leather aprons and leggings
- Full body suits
- Flame and chemical resistant clothing
- Various types of plastic boot covers and overshoes

As with all personal protective and safety equipment, following the manufacturer's instructions on its use, care and cleaning is critical to allowing the best protection for the user.

7.53 MAIN SHOPS AND YARD REQUIREMENTS

7.53.1 Main Shop

Safety glasses and approved safety footwear are required while working in the main shop area. If overhead hazards are present approved head protection is required.

While working on the drill press, grinders or solvent bath a face shield is also required in addition to the safety glasses already worn.

7.53.2 Fabrication Shop

Safety glasses and approved safety footwear are mandatory in the fabrication shop. Approved safety head wear is required when overhead hazards are present.

While working on drill presses and grinders face shields are required.

Appropriate welding protective gear is required while performing welding.

7.54 PURGING

Any harmful substance contained within equipment, pipes, and pipelines must be controlled or removed to eliminate any possible hazard during repair, modification, or installation work. Blind flanges used for this purpose are to be of sufficient rating to withstand the highest possible pressure that may result. The unit is to be clearly marked to indicate that a blind flange has been installed.

Where the contents of the equipment or lines could contain a substance that is hazardous to health and safety, the worker shall wear appropriate personal protective equipment and respiratory protection while performing the job.

WRITTEN PROCEDURES FOR THE ISOLATION OF EQUIPMENT, PIPES OR PIPELINES SHALL BE DEVELOPED. These procedures must include the PURGING METHOD and medium to be used, the use of a "blind list" to ensure placement and removal of blinds (where suitable) and step-by-step instructions on performing the job.

7.55 REFUSAL OF UNSAFE WORK

- A person must not carry out or cause to be carried out any work process or operate or cause to be operated any tool, appliance or equipment if that person has reasonable cause to believe that to do so would create an undue hazard to the health and safety of any person.
- A worker who refuses to carry out a work process or operate a tool, appliance or equipment as stated above must immediately report the circumstances of the unsafe condition to his or her supervisor.
- A supervisor receiving a report must immediately investigate the matter and ensure that any unsafe condition is remedied without delay or, if in his/her opinion the report is not valid, the supervisor must inform the person who made the report.
- If this procedure does not resolve the matter and the worker continues to refuse to carry out the work process or operate the tool, appliance or equipment, the supervisor along with the employers safety representative must investigate the matter in the presence of the worker who made the report and in the presence of:
 - a worker member of the occupational health and safety committee,
 - a worker who is selected by a trade union representing the worker, or
 - if there is no occupational health and safety committee or the worker is not represented by a trade union, any other reasonably available worker selected by the worker.
- If the investigation does not resolve the matter and the worker continues to refuse to carry out the work process or operate the tool, appliance or equipment both the supervisor, safety representative and the worker must immediately notify an officer of the Workers' Compensation Board, who must investigate the matter without undue delay and he/she shall issue whatever orders are deemed necessary.
- A worker will not be subject to disciplinary action because the worker has acted in compliance with section 3.24 of the WCB regulations, "Refusal of Unsafe Work" or with an order made by a WCB officer.
- Temporary assignment to alternative work at no loss in pay to the worker until the matter is resolved is deemed not to constitute disciplinary action.

7.56 SAFE WORK PERMIT

Safe work permits will be issued for work that is considered beyond the scope of routine working procedures, or where workers or other employees may be exposed to unusual hazards. The permits will be issued to ensure that all persons involved in a specific job are aware of all the conditions, hazards and procedures to be followed.

The jobsite superintendent shall be contacted to issue a safe work permit before the start of any work on a Surerus worksite that involves the use of:

- harmful substances or explosive devices;
- steep slope conditions;
- confined space entry;
- hot work in the vicinity of flammables or explosives;
- work in the immediate vicinity of overhead power lines;
- excavation or trenching that is within five meters of pipe, cable or conduit;
- the atmosphere could become or is in excess of the threshold limit value;
- any other similarly hazardous work.

In preparation for work under a safe work permit, the area must be inspected and atmospheric monitoring completed by the Job-site Superintendent or his designate immediately before the permit is issued.

Following are some items that must be addressed:

isolation	All sources of energy must be isolated.
purging	Equipment, lines and vessels will be purged free of all sources of combustion or toxic material and have sufficient oxygen to support life. This is to be verified by applicable atmospheric monitoring.
combustible material	In hot work areas all combustible materials that cannot be removed shall be covered.
fire protection	When danger from fire or explosion exists, fire equipment shall be readily available.
atmospheric monitoring	Tests will be conducted to determine the oxygen content, lower explosive limits and presence of toxic material by a competent company representative or his designate. The results will be initialled by the person performing the test.
WHMIS	All WHMIS information that is applicable to the job being performed will be listed on the permit. This includes controlled products that

	may have been in the pipe prior to purging.
personal protective equipment	All personal protective equipment required to perform this job will be listed and worn when applicable during the duration of the job.
time and duration of the permit	The permit will state the site, facility or specific job to which it applies. The date and time of issue will appear on the permit along with the specific time to which it applies. If the job is shut down for any reason the conditions of the permit will be re-assessed to ensure that safe conditions still exist before commencing work again. The permit will be initialled by the person issuing the permit, stating the time that the work is allowed to resume. Permits are only valid for a one-day duration and checks will be made frequently throughout this period and whenever conditions change. The permit will be signed by the jobsite superintendent or designate in charge of the job indicating that the conditions stated on the permit have been verified to the best of his or her ability. The receiver of the permit must be the most senior on site representative of the individuals performing the work and will also sign the permit indicating he or she understands the conditions and will communicate these conditions to all workers under their control that are present at the work site. This representative must also be satisfied that the work can be carried out safely.

7.57 SAFETY INDOCTRINATION AND ORIENTATION

In order to ensure that all Surerus employees, contractors, and visitors are familiar with health and safety regulations, policies, standards, procedures and rules on any particular jobsite, the superintendent will provide for the orientation and training of newly hired or transferred workers and contractors upon their arrival on the jobsite, stressing safety, job hazards, and work methods.

Visitor orientations may be limited only to issues that would present a risk while they are on site.

This indoctrination, orientation, and training function will normally be carried out by the appropriate foreman, site safety representative, or both, and shall include but not be limited to the following:

- Surerus orientation and safety DVD
- Surerus pamphlet and/or handbook
- company safety policies and industry guiding principle
- company safety standards and rules
- site-specific rules
- local practices
- expectations, ethics and principles associated with work
- personal protective equipment requirements
- location of personal protective equipment
- equipment operation
- site WHMIS information
- location of manuals, procedures, safety rules and other information
- worksite and job hazards
- requirements for safe work permits
- safety meetings, pre-job safety meeting requirements
- vehicle parking, driving, speed limits and seat belts
- facial hair standards
- responsibilities of the worker
- drug and alcohol policy
- restricted and non-smoking areas
- critical jobs and tasks
- location of first aid stations, fire extinguishers, respiratory protection and other emergency equipment
- incident, accident, hazard, near miss and safety opportunity reporting
- emergency procedures and evacuation plans

- supervisor in charge and alternates
- enforcement and discipline policy
- worker's responsibility to refuse to perform unsafe work
- worker's responsibility not to carry out work where imminent danger exists
- other issues that the company may wish to communicate.

The superintendent, foreman or safety representative will ensure that the new employee, contractor or visitor is instructed in all "client" safety policies and procedures relevant to both his/her job in particular and to the job site in general.

Worker development will not be left to chance or to trial and error. Instead, systematic training and a planned process of preparing people to know their job well will be augmented. New employees will be teamed with experienced employees and be under the supervision of the foreman.

All indoctrination, orientation and training will be documented with the use of an acknowledgement form with the signature of employee being oriented, a checklist of what was discussed, the name and signature of the company representative giving the orientation and the date it was completed. The acknowledgement form shall indicate the individual has received this orientation and will comply with the company safety requirements.

Ongoing training will be available to employees through:

- monthly safety meetings using audio/visual presentations and literature relative to the work in progress at a particular jobsite
- daily tailgate meetings designed to address job specific concerns and hazards
- daily safety inspections by job superintendents

Note: All necessary safety equipment, with the exception of footwear and prescription eye glasses, will be made available by the company to new employees.

7.58 SITE ACCESS, DESIGN, AND MAINTENANCE

7.58.1 Access to Work Areas

There shall be a safe way of entering and leaving each area where work is performed on Surerus work or jobsites.

7.58.2 Arrangement of Work Areas

A work area shall be arranged to allow the safe movement of people, equipment, and materials. If, to ensure safety, an aisle or passageway is designated for pedestrian traffic, the route shall be clearly indicated by markings or other effective means and, where practicable, floor or grade markings shall be used.

7.58.3 Door Installations

A door installed in a Surerus workplace must meet the requirements of the B.C. Building Code. If a door swings towards a stair, the full arc of its swing must be over a landing. A glass or transparent door must have hardware, bars or markings so that its presence and position are readily apparent.

7.58.4 Restricted Entry

Hazardous areas not intended to be accessible to workers must be secured by locked doors or equivalent means of security and must not be entered unless safe work procedures are developed and followed.

7.58.5 Restricted Visibility

A worker shall not be permitted to enter or work in an area if visibility in the area is restricted by the presence of smoke, steam or other substance in the atmosphere unless appropriate safe work procedures are followed.

7.58.6 Slipping and Tripping Hazards

Floors, platforms, ramps, stairs and walkways available for use by workers must be maintained in a state of good repair and kept free of slipping and tripping hazards. If such areas are taken out of service, the company shall take reasonable precautions for preventing entry or use.

7.58.7 Waste Material and Clean Up

Refuse, spills and waste material must not be allowed to accumulate so as to constitute a hazard. Compressed air or steam must not be used for blowing dust, chips, or other substances from equipment, materials and structures if any person could be exposed to the jet, or to the material it expels or propels.

7.59 MANUAL MATERIAL HANDLING AND STORAGE

About three in every four Canadian workers whose job includes manual materials handling (MMH), such as lifting, carrying, pushing and pulling, suffer pain due to back injury at some time. Although back injuries are preventable, they continue to occur in the workplace at a high rate.

Major causes of back injury are the weight of the load lifted, the range of the lift, the location of the load in relation to the body, the size and shape of the load, and the number of lifts performed. Excessive bending and twisting increases the risk for back injury.

How often the worker performs MMH tasks, and for how long, are extremely important factors. Frequently repeated and long-lasting tasks are the most tiring and therefore the most likely to induce back injury.

For most workers, lifting loads over 20 kilograms results in an increased number and severity of back injuries. While the load weight is the most obvious factor, it is not the single determining risk of injury. The location of the load is also important, since a load lifted far from the body imposes more stress on the back than the same load lifted close to the body. A bulky object is harder to lift than a compact one of the same weight because it cannot be brought close to the body. A bulky object also forces an awkward and potentially unbalanced position.

The preferred range for lifting is between knee and waist height; lifting above and below this range is more hazardous.

Employees performing lifting as part of their work must conduct a hazard assessment of the material they handling and proceed according to the controls identified in the assessment.

Surerus workers are to utilize mechanical lifting devices for objects and materials weighing over 25 kilograms. Using mechanical devices for lifting materials is the preferred method at Surerus.

The following are some helpful tips for identifying controls while MMH duties.

- Conduct a proper assessment of the risks from MMH duties for each work environment.
- List the tasks in the critical task inventory and the risk weighting identified.
- Tasks with a potential for musculoskeletal injuries (MSI) must have risk controls implemented.
- The HSE Manager will conduct the assessment and share the results with employees performing the tasks.
- All employees must be trained in MSI and MMH issues.

The following factors must be considered, where applicable, in the identification and assessment of the risk of MSI:

1. The physical demands of work activities, including force required.
2. Repetition, duration, work postures, and local contact stresses.
3. Aspects of the layout and condition of the workplace or workstation, including working reaches, working heights, seating, and floor surfaces.
4. The characteristics of objects handled, including size and shape, load condition and weight distribution, and container, tool and equipment handles.
5. The environmental conditions, including cold temperature.
6. Characteristics of the organization of work, including work-recovery cycles, task variability and work rate.

Decrease or eliminate MMH demands

Wherever possible, heavy MMH tasks should be either eliminated, or performed by powered or mechanical handling systems, as long as the worker is properly trained in the safe use of this equipment. Lifting and carrying can be easier and safer if aided by lift tables, conveyors, yokes or trucks. Gravity dumps and chutes can help in disposing of materials.

When mechanical aids cannot help, there are several other ways to decrease the MMH demands on the body. Here are some examples:

- Decrease the weight of handled objects to acceptable limits.
- Reduce the weight by assigning two people to lift the load or by splitting the load into two or more containers. Using light plastic containers also decreases the weight of the load.
- Change the type of MMH movement. For example, lowering objects causes less strain than lifting. Pulling objects is easier than carrying. Pushing is less demanding than pulling.
- Change work area layouts. Reducing the horizontal and vertical distances of lifting substantially lowers MMH demands.
- Reducing the travel distances for carrying, pushing or pulling also decreases work demands.
- Assign more time for repetitive handling tasks. This reduces the frequency of handling and allows for more work/rest periods.
- Alternate heavy tasks with lighter ones to reduce the build-up of fatigue.

Reduce stressful body movements such as bending and twisting

- Keep all materials at a work level that is adjusted to the worker's body size.
- Eliminate deep shelves to avoid bending.
- Ensure sufficient space for the entire body to turn.

- Locate objects within easy reach.
- Ensure clear and easy access to the load.
- Use slings and hooks to move loads without handles.
- Balance contents of containers.
- Use rigid containers.
- Change the shape of the load so that it can be handled close to the body.

Improve the work environment

The design of the work environment is an important element of back injury prevention.

- Keep the temperature of the working area between 18°C and 21°C when practical.
- Ensure an adequate work/rest schedule. In extreme cases that require heavy MMH in temperatures above 30°C, rest periods or light work load tasks may account for up to 75% of the work time.
- Wear clothing designed to decrease heat absorption by the body and to increase evaporation. This is particularly important for people required to work in a hot environment.
- Use proper protective clothing for work in a cold environment. This is essential to protect the worker from hypothermia and to preserve the dexterity needed for safe work.
- Illuminate the work area for MMH tasks that require precise placement at the level of 200 lux.
- Use task lights or other additional light sources for tasks requiring fine visual discrimination.
- Use angular lighting and colour contrast to improve depth perception. This helps the worker where MMH involves climbing stairs or moving in passageways.

For outdoor tasks, the temperature conditions including the humidex (in hot weather) or wind-chill factor (in cold weather) have to be monitored very closely.

- Reduce MMH tasks by half when the temperature exceeds 28°C.
- Stop MMH when the temperature exceeds 40°C.
- Restrict MMH to the minimum possible when wind-chill drops below -25°C.
- Stop MMH when wind-chill drops to -35°C.

General lifting rules

- Prepare to lift by warming up the muscles.
- Stand close to the load, facing the way you intend to move.
- Use a wide stance to gain balance.
- Ensure a good grip on the load.

- Straddle the load.
- Bend the hips and knees.
- Keep the back straight.
- Keep arms straight.
- Tighten abdominal muscles.
- Tuck chin into the chest.
- Initiate the lift with body weight.
- Lift the load close to the body.
- Lift smoothly without jerking.
- Avoid twisting and side bending while lifting.
- Do not lift if you are not convinced that you can handle the load safely.

It is also important that workers take advantage of rest periods to relax tired muscles and that they report discomfort experienced during work to help identify hazards and correct working conditions BEFORE injury can occur.

Another cause of back injury is that workers occasionally do physically demanding tasks they are not ready for. If not warmed up before doing MMH tasks, muscles, tendons and ligaments are more likely to pull, tear or cramp. The sudden stretch or contraction of muscles can lead to more serious and permanent injury if physically stressful work continues.

It is equally important that the worker be mentally prepared for the task. Accidents happen when fatigue, stress or distractions are involved, especially when the worker is not accustomed to handling heavy or awkward loads.

If a worker reports symptoms of a musculoskeletal injury, the supervisor must promptly review the activities of that worker and of other workers doing similar tasks, to identify work-related causes of the symptoms. If any are identified actions must be taken to implement corrective measures to avoid further injuries if the causes of the symptoms are work related.

The MMH or ergonomics program must be reviewed yearly and any deficiencies corrected without delay.

Material storage guidelines

Material and equipment must be placed, stacked or stored in a stable and secure manner. Stacked material or containers must be stabilized as necessary by interlocking, strapping or other effective means of restraint to protect the safety of workers.

An area in which material may be dropped, dumped or spilled must be guarded to prevent inadvertent entry by workers, or protected by adequate covers and guarding.

7.60 TRAFFIC CONTROL

Traffic control is required when traffic must be moved through or around highway or street construction, maintenance operations or utility work on or adjacent to a roadway.

Traffic control equipment, arrangements and procedures must meet the requirements of the latest edition of the Traffic Control Manual for Work on Roadways (the "Traffic Control Manual") issued by the Ministry of Transportation, unless otherwise specified by regulation. The Traffic Control Manual will be made available to all supervisors designated as a Traffic Control Supervisor.

Responsibilities

Surerus superintendents and supervisors will provide adequate protection for workers exposed to or potentially exposed to traffic related hazards. When traffic control is necessary a designated Traffic Control Supervisor will be identified to organize all activities concerning the traffic control measures needed.

Workers are responsible for using the control measure provided by Surerus and/or regulatory bodies to ensure they are not put in harm's way.

Traffic Control Person and Equipment

The supervisor must ensure that whenever traffic control is needed, the following requirements are implemented:

- (a) Any person assigned to be a traffic control person must be adequately trained in a manner acceptable to the Board. The traffic control person (TCP) must have a valid certificate by a recognized trainer to qualify as adequately trained.
- (b) The traffic control person must effectively perform the role in the traffic control arrangements and procedures for the work.

A TCP must stand in a safe position, preferably on the driver's side of the lane under the TCP's control, be clearly visible, and have an unobstructed view of approaching traffic, and be positioned at least 25 metres (80 feet) away from the work area unless circumstances or space requirements, such as working at or near an intersection, dictate otherwise.

Traffic control signs and devices must be positioned and used as specified in the Traffic Control Manual and signs and devices must be located so as to allow traffic to move by or through the work area in a controlled manner and, if necessary, to come to a controlled stop with due regard for the prevailing weather and road conditions.

A sign advising of a traffic control person ahead must be placed in advance of each traffic control person's station, and this sign must be removed promptly when a traffic control person is no longer on duty at that station.

Each traffic control person must be provided with, and must use, all of the following:

- (a) A traffic control paddle meeting the requirements for a C-27H Traffic Control Paddle as specified in the Traffic Control Manual and, if necessary to control fatigue, a non-conductive support staff for the paddle.
- (b) High visibility apparel meeting the Type 1 or Type 2 criteria of WCB Standard Personal Protective Equipment Standard 2-1997, High Visibility Garment, or the Class 2 or 3 garment criteria of CSA Standard Z96-02, High-Visibility Safety Apparel, with a fluorescent background colour.
- (c) Each traffic control person will be provided with, and must use, safety headgear of a high visibility colour with a strip of retro reflective tape across the top from front to back and on the sides.
- (d) Each traffic control person will be provided with a radio for use as an effective means of communication when traffic control persons are not visible to each other. Under no circumstances is a system of passing batons or similar items to indicate the last vehicle traveling through the zone under control.

All traffic control equipment and devices, including signs, traffic control paddles, radios and personal protective equipment, must be kept clean and in working condition.

7.61 FATIGUE MANAGEMENT

The purpose of the Fatigue Management System (**FMS**) is to ensure management, supervisory personnel and employees understand what fatigue is, how extended hours of work or consecutive days of work can affect fatigue and the proper proactive methods of effectively dealing with worker fatigue.

Training

All company employees are required to attend FMS training. Training will consist of some or all of the following aspects, dependant upon the employee's responsibilities:

- Definition of fatigue
- Signs, symptoms and consequences of fatigue
- Roles and responsibilities
- Preventive methods for dealing with fatigue
- Reporting procedures
- Monitoring methods
- Program review processes

Fatigue

Fatigue is defined as a state of being tired. It can be caused by long hours of work, long hours of physical or mental activity, inadequate rest, excessive stress, and combinations of these factors. The signs, symptoms and effect fatigue has on workers varies from one person to the next, however fatigue **may** affect the individual worker's ability to perform mental and physical tasks.

Signs, symptoms, factors and performance impairments

Some of the possible physical signs and symptoms are as follows:

- Tiredness
- Sleepiness
- Irritability
- Depression
- Giddiness
- Loss of appetite
- Digestive problems
- An increased susceptibility to illness

Some possible performance impairments are:

- Slowed reactions (physical reaction speed and speed of thought)
- Failure to respond to stimuli, changes in the surroundings, information provided
- Incorrect actions, either physical or mental

- Flawed logic and judgment and an increase in memory errors, including forgetfulness
- Decreased vigilance
- Reduced motivation
- Increased tendency for risk-taking

Factors that may have an influence on fatigue

- Time of day
- Temperature
- Working alone
- Repetitive or “boring” functions
- Being inactive
- Length and frequency of breaks
- Availability of food and water
- Duration of the extended hours/consecutive days
- Days off
- Type of work
- Job stress
- Home stress
- Non-effective use of personal time

RESPONSIBILITIES

Management

- To ensure the FMS is implemented during the project
- Provide the necessary information about fatigue
- Provide instruction and training
- Communicate employer expectations
- Monitor the effects of extended work hours/days
- Support employees who are experiencing concerns with fatigue
- Assist and advise line supervisors
- Investigate any problems and/or concerns
- Inspect the workplace and review FMS with employees
- Review the FMS

Supervisors

- Ensure all crew members understand the FMS
- Conduct safety meetings discussing fatigue and the FMS

- Promote the FMS
- Ensure tasks are performed in safe and healthy manner
- Be aware of the possible risks associated with extended hours and/or consecutive days of work
- Give workers as much notice as possible if extended hours are anticipated
- Observe and record how individuals respond to extended hours
- Recognize symptoms of fatigue
- Get feedback from individual crew members and the crew as a whole
- Take prompt action if a risk develops
- Relay information to and from management and employees
- Report any FMS problems, concerns and/or issues

Employees

- Actively participate in FMS training
- Recognize symptoms of fatigue
- Promptly report any fatigue related concerns
- Report any individual medical or personal situations that may have an affect on fatigue
- Get proper rest during time off
- Identify personal stress and seek assistance if required
-

PREVENTIVE METHODS FOR DEALING WITH FATIGUE

- Inform all workers of the FMS
- Minimize extended hours of work when possible
- Schedule rest days
- Assess and control hazards and risks
- Provide an honest, open and healthy work environment
- Provide information and assistance
- Recognize individual and crew fatigue
- Give as much advance notice of extended hours as possible
- Define whether the work is urgent or not
- Ensure crewmembers have access to food and water
- Take short and frequent breaks
- Provide employees with options such as transfers, job sharing, etc.
- Solicit short-term help to minimize the need for extended hours
- Have crew members rotate and perform various functions of short duration during extended hours

- Perform complex tasks earlier in the shift, if possible
- After a long day, consider starting later the next day
- Utilize the buddy system
- Account for employees returning from sickness, absences and/or modified work
- In conjunction with employees, identify health problems that may affect an employee's ability to work extended hours (i.e., diabetes)
- Be flexible and supportive when dealing with an employee with problems at home

REPORTING PROCEDURES

- Report any unsafe acts
- Report all incidents and near misses
- Inform management if a crew or an individual has a concern working extended hours
- Develop a process to identify and report when a crew or an individual is working extended hours and/or excessive consecutive days

MONITORING METHODS

- Management/supervisors to monitor crew's hours of work
- Management/supervisors to determine the need for extended hours
- Management/supervisors are to monitor crews when working extended hours for fatigue-related concerns
- Management/supervisors are to address crew member concerns regarding working extended hours/days
- Management is to monitor supervisor/employee relationships
- Ensure everyone has been trained in the FMS

7.62 VIOLENCE/HARASSMENT IN THE WORKPLACE

Violence

Definition of "violence" means the attempted or actual exercise by a person of any physical force so as to cause injury to a worker, and includes any threatening statement or behaviour which gives a worker reasonable cause to believe that he or she is at risk of injury.

Violence in the workplace, which is deemed to include travel to and from the worksite as well as at job accommodations (camp, motel, hotel, etc.) will not be tolerated, and shall be cause for immediate dismissal, and may be subject also to immediate referral to law enforcement officials for further investigation and disposition.

Improper activity or behaviour including the attempted or actual exercise by a worker towards another worker using physical force to cause injury, and including any threatening statement or behaviour which gives the worker reasonable cause to believe he or she is at risk of injury. Horseplay, practical jokes, unnecessary running or jumping or similar conduct will not be tolerated in the workplace.

A person must not engage in any improper activity or behaviour at a Surerus workplace that might create or constitute a hazard to them or to any other person.

Violence Hazard Assessment

Each supervisor must ensure that workers are instructed in how to recognize workplace violence, the policy, procedures and workplace arrangements that effectively minimize or eliminate workplace violence, the appropriate response to workplace violence, including how to obtain assistance and procedures for reporting, investigating and documenting incidents of workplace violence.

A risk assessment must be performed in any workplace in which a risk of injury to workers from violence arising out of their employment may be present.

The risk assessment must include the consideration of:

- (a) previous experience in that workplace,
- (b) occupational experience in similar workplaces
- (c) location and circumstances in which work will take place.

The assessment must be documented on the pre-construction hazard assessment form and communicated to all employees working on that site.

If a risk of injury to workers from violence is identified by the assessment the supervisor must establish procedures and work environment arrangements to eliminate or minimize the risk to workers from violence.

Surerus supervisors are responsible to inform workers who may be exposed to the risk of violence, of the nature and extent of the risk. Workers must be provided with information related to the risk of violence from persons who have a history of violent behaviour and whom workers are likely to encounter in the course of their work.

The supervisor must ensure that a worker reporting an injury or adverse symptom as a result of an incident of violence is advised to consult a physician of the worker's choice for treatment or referral.

Any and all workplace violence events will be promptly investigated by Surerus management.

The investigations will be performed by the site superintendent or supervisor with input and assistance from the HSE manager or designate.

Harassment

Harassment can come in different forms, including, but not limited to, personal or sexual harassment.

Harassment includes a conduct that unreasonably interferes with a person's work performance or creates a hostile, intimidating, or offensive work environment. Specific examples of harassment may include, but are not limited to:

- Written or verbal abuse or threats;
- Racial, religious or ethnic slurs;

Harassment does not include actions occasioned through exercising good faith Surerus' managerial or supervisory rights and responsibilities.

Sexual harassment is a serious form of personal harassment. It is deliberate and unsolicited, and generally takes the form of unwelcome and offensive sexual comments, gestures, or physical contact on a one-time basis or in a series of incidents.

Examples of sexual harassment may include, but are not limited to:

- A person in authority asking an employee for sexual favours in return for being hired or receiving promotions or other employment benefits;
- Sexual advances with actual or implied work related consequences;
- Unwanted physical contact such as touching, patting, pinching, hugging;
- Physical assault of a sexual nature.

This definition of sexual harassment is not meant to inhibit interactions or relationships based on mutual consent or normal social contact between employees.

Similarly, sexual harassment is not the accepted social banter that often occurs in the work environment, nor is it related to flirtation or a relationship between two consenting persons.

These relationships are considered consensual, based on mutual attraction and no intimidation is involved or extended. Sexual harassment is coercive, one-sided, and both males and females can be victims of it.

Harassment, whether personal, sexual or otherwise will not be tolerated or condoned, and may lead to immediate discipline.

Any and all Violence or Harassment allegations must be investigated by Surerus Management.

Section 8: INCIDENT MANAGEMENT

Table of Contents

8.1	Purpose.....	155
8.2	Accident and Incident Investigation.....	155
8.3	Reporting.....	156
8.3.1	Internal Reporting	156
8.3.2	External Reporting	157
8.4	Incident Record Keeping and Tracking	158
8.4.1	Purpose	158
8.4.2	Process	158
8.4.3	Incident Report Form	158
8.4.4	Incident Investigation Report Form (8-1)	160
8.4.5	Vehicle Incident Report Form (8-2)	160
8.4.6	Spill Report Form (8-3)	160

8.1 PURPOSE

The purpose of this section is to prevent incident recurrence by conducting a comprehensive investigation of all incidents and tracking incident investigations through closure.

Note: All incidents shall be investigated and documented as per this section. This includes all accidents, injuries, releases, equipment failures, process losses and near-misses.

8.2 ACCIDENT AND INCIDENT INVESTIGATION

The first step to take when a serious accident occurs is to care for the injured and arrange for medical assistance. The site must be rendered safe from further problems and the incident should be reported to the immediate supervisor, who is responsible for reporting up the chain of command to senior management. The supervisor in charge of the site will ensure all appropriate government agencies have been notified.

The site must not be disturbed until the investigation has been completed. In the event of fire, explosion, disabling injury or death, the applicable government agencies must give permission to move evidence or commence production or work activities.

All accidents/incidents, including near-misses, must be reported, investigated and documented. Near-miss incidents include an occurrence that does not cause injury or damage but could have done so.

All investigations, analysis and follow-up shall follow the procedures and techniques set out in the company's Health, Safety and Environment Manual and shall include, but be limited to, the following.

Members of the incident investigation team shall be qualified and competent individuals. Surerus will provide training on the investigation techniques used during an incident investigation.

The project superintendent, shop foreman or designate shall:

- Investigate all accidents, incidents, near-misses and property damage.
- Interview all employees involved, including witnesses.
- Interview all supervisory staff.
- Complete all necessary forms.
- Report in writing to Surerus head office as per Figure 1.

8.3 REPORTING

All accidents, incidents and near-misses must be reported according to the Incident Reporting Structure outline in Figure 1.

Verbal notification to the on-site client representative will be done as soon as possible.

Investigation report(s) will be completed within 24 hours unless circumstances determine otherwise as per Figure 1.

8.3.1 Internal Reporting

In the event of serious accidents, internal reporting including documentation of all pertinent data should take place as soon as possible following the occurrence of the incident or accident. The company emergency response plan should be followed to ensure proper reporting requirements are carried out.

Figure 1

Internal Reporting Structure	Definition	Verbal Report Immediate	Written Report 24 hours
Incident Class			
Minor	- An event that results in: - Fire/explosion/spill/release or other events with casualty/property/liability loss potential under \$10,000 - Employee or contractor first aid case - A minor near-miss	- Site safety coordinator, shop foreman - HSE Manager - Operations Manager	- Operations Manager/ - HSE Manager
Serious	- An event that results in: - Fire/explosion/spill/release or other events with casualty/property/liability loss potential of \$10,000 to \$100,000 - Employee or contractor medical aid or restricted work case - A serious near-miss	- Site safety coordinator, HSE Manager - Operations Manager	- HSE Manager/ - Operations Manager
Major	- An event that results in: - Fire/explosion/spill/release or other events with casualty/property/liability loss potential of greater than \$100,000 - Employee or contractor lost time injury	Site safety coordinator/ project superintendent	- Operations Manager - HSE Manager - President

	- and/or hospitalization of a worker • Major uncontrolled fire/explosion/spill/release that represents imminent and serious or substantial danger to employees, public health, or the environment • Fatality • Significant media coverage • A major near-miss •	• HSE Manager • Operations Manager • President	
--	--	--	--

Note: Surerus head office representatives will carry out investigations of serious accidents or incidents such as fatalities.

8.3.2 External Reporting

Accidents that result in death, serious burns, or disabling injuries must be reported to WorkSafe BC immediately. Fires or explosions shall be reported to the applicable agencies depending on the provincial jurisdiction of the worksite where the accident occurred. The information will be laid out in the onsite emergency response plan.

8.4 INCIDENT RECORD KEEPING AND TRACKING

8.4.1 Purpose

All written incident reports must be submitted to the Surerus head office for tracking. Surerus keeps incident records in an incident tracking database for the purposes of trending analysis and, as such, the data entered must be comprehensive.

8.4.2 Process

All incident reports are to be sent to the HSE Manager in the Surerus head office.

The reports will be reviewed for content accuracy and identification of the root causes of the incident. If this is not satisfied the HSE Manager will seek clarification and completion through the supervisor or field safety coordinator completing the investigation report.

Once the incident report is complete the HSE Manager will sign off the incident document and have the data entered into the tracking database and an identifying number assigned.

The incident document will then be reviewed and signed by senior management and then filed for future reference.

The actions arising out of the investigation will be tracked and followed up by the HSE Manager through the database. This will be done on a monthly basis to ensure timely completion of remedial actions.

When actions are completed and a date of completion is assured the completed action will be noted on the incident form and the information input into the database.

8.4.3 Incident Report Form

The Surerus incident report form is an essential part of the incident management system (see form attached) as it guides the investigator through the investigation process.

Part 1

Addresses information required for an effective investigation, including date, time, place, any injuries, type of incident and the incident summary. This portion can be filled out as a standalone piece if the incident does not require further information, or if it is a minor incident and further investigation would be of minimal benefit.

Part 2

Includes factual information, such as a chronological sequence of events. Documentation reviewed for the investigation is listed and described.

Part 3

Description of the immediate causes, and consideration of the actions and conditions around the incident.

Part 4

Basic cause analysis including the job and personal factors. Possible root causes of the incident are considered and documented. The investigator can also document any additional observations that may not fit elsewhere in the form.

Part 5

Recommendations for improvement are documented. The recommendation must have a person's name assigned for follow-through and a deadline for completion.

Part 6

Incident costs are logged to document the expenses from each type of incident. This helps determine which controls are the most cost-effective and provide the greatest benefit. The investigator's names and signatures are also included.

If the investigation form is properly filled out and processed it will provide valuable information to Surerus management, and will assist them in focusing efforts to prevent incidents causing damage to company property and harm to employees.

8.4.4 Incident Investigation Report Form

8.4.5 Vehicle Incident Report Form

The vehicle incident report form is specifically designed to cover information normally found in an incident involving a motor vehicle, including details about each driver, sketches of the accident scene, type of road and the weather conditions.

This incident report form is for compiling information and does not take the place of the incident investigation report. Both forms must be completed in the event of a motor vehicle accident.

8.4.6 Spill Report Form

The spill report form deals with only the circumstances and conditions around a spill related incident, and must be completed in addition to the incident investigation report

These forms are located in the safety office and with your foreman.

Section 9: SAFE WORK PRACTICES, PROCEDURES & STANDARDS

Table of Contents

9.1	Introduction	165
9.2	Backfilling	166
9.3	Boring and Horizontal Directional Drilling	166
9.4	Ground Disturbance Operations	167
9.4.1	Definition	167
9.4.2	Buried Structures	167
9.4.3	Ditching Machines	167
9.4.4	Backhoe and Dragline Operations	168
9.5	Mobile Equipment Operation	169
9.5.1	Responsibility of the Supervisor	169
9.5.2	Responsibility of the Operator	169
9.5.3	Powered Equipment Inspections	170
9.5.4	Fuelling Mobile Equipment	171
9.6	Equipment Working on Steep Slopes	172
9.6.1	Before Work Begins	172
9.6.2	After Work Begins	172
9.6.3	Anchoring Procedure	172
9.7	Explosives	173
9.7.1	Qualifications for Blasters	173
9.7.2	Guidelines	173
9.8	Fire and Explosion Hazards	175
9.8.1	Explosive Atmospheres	175
9.8.2	Types of Fires	176
9.9	Fuelling of Equipment	177

9.10	Lowering of Pipe into Ditch	178
9.11	Pigging and Testing	179
9.12	Pipe Bending	181
9.13	Pipe Handling	182
9.13.1	Unloading Pipe	182
9.13.2	Stockpiling Pipe	182
9.13.3	Stringing Pipe	182
9.13.4	Tractor Operations	183
9.14	Power Lines	185
9.14.1	Signage	185
9.14.2	Working Close to Overhead Power Lines	185
9.15	Preparation of Right-of-Way	187
9.15.1	Roadside Hazards	187
9.15.2	Falling and Bucking	187
9.15.3	Temporary Crossings	188
9.15.4	Bulldozer Operations	188
9.16	Priming.....	189
9.17	Abrasive Blasting Operations.....	190
9.18	Adiographic Inspection	193
9.19	Rigging and Cranes	195
9.20	Cranes and Side Booms	199
9.21	River Crossings	201
9.21.1	Bridge Crossing	201
9.21.2	Under-Water Crossing	201
9.22	Sloping or Shoring of Excavations	202
9.22.1	Engineering Specification	202
9.22.2	Workers Compensation Board Specifications	203
9.22.3	Entry, Exit, and Guarding	203

9.22.4	Excavated Materials, Scaling, and Water Accumulation	203
9.22.5	Pits and Quarries	204
9.23	Shoring Requirements	209
9.24	Standard Hoisting Signals	210
9.25	Storage, Selection & Safe Work Procedure for Hoisting Chains & Slings.....	212
9.25.1	Storing	212
9.25.2	Selecting	212
9.25.3	Hoisting	212
9.26	Temporary Crossing Operations.....	213
9.27	Transportation of Materials and Equipment	215
9.28	Transportation of Workers.....	216
9.29	Welding Operations	217
9.30	Winter Work.....	220
9.30.1	Ice	220
9.30.2	Cold-Related Injuries	221
9.31	Job Procedures	222
9.31.1	What are they?	222
9.31.2	Who uses them?	222
9.31.3	When and by whom are they generated?	222
9.31.4	Where are they?	222
9.32	Standards.....	223
9.32.1	Atmospheric Monitoring	223
9.32.1.1	Indoor Air Quality	223
9.32.1.2	Environmental Tobacco Smoke.....	223
9.32.2	Cold and Heat Stress	223
9.32.2.1	Cold Stress.....	223
9.32.2.2	Temperature Charts.....	224
9.32.2.3	Heat Stress	227
9.32.3	Confined Space Entry	228

9.32.3.1	<i>Definition of Confined Space</i>	<i>228</i>
9.32.3.2	<i>Confined Space Entry Procedure.....</i>	<i>228</i>
9.32.3.3	<i>Code of Practice Checklist/Permit.....</i>	<i>229</i>
9.32.4	All Terrain Vehicle Operation	235

9.1 INTRODUCTION

This section outlines Surerus' safe work procedures for various jobsite conditions and duties.

Everyone wants to get the job done right and, to many in this industry, that means on schedule, within budget and to the client's satisfaction. But at Surerus, doing the job right also means doing it safely, using industry-recognized safe work practices.

These practices and procedures are proven methods for controlling hazards and completing jobs and tasks with a minimum amount of risk to people and property.

Within this industry there are safe work practices specific to pipeline work. Due to the varying conditions related to this work, however, site-specific procedures are often written in the field to control site-specific hazards.

Supervisors are encouraged to have their crew members involved in the preparation of safe work procedures.

Management understands and fully endorses safe work practices and ensures that:

- Safe work practices are in writing.
- All workers understand the safe work practice that applies to their particular job or task.
- All equipment and materials to ensure compliance to the safe work practice are available.
- Supervisors and foremen are to make sure that these safe work practices and procedures are followed.

A safe work practices and procedures manual is located at the Surerus head office and at all jobsites. All workers have access to this manual. The HSE Manager is the custodian of the safe work practices and procedures manual.

9.2 BACKFILLING

No backfilling (shading) shall be commenced until all workers are clear of the working area.

The operators of any machines or vehicles being used in backfilling operations shall keep their swampers in sight at all times.

The operator of any truck employed in backfilling operations shall ensure that all workers are in the clear before approaching the ditch, or dumping the load.

Swampers, spotters, signal persons and bystanders assisting, viewing or inspecting backfilling (shading) operations shall be wearing a hard hat, safety footwear and high visibility and distinguishing apparel.

9.3 BORING AND HORIZONTAL DIRECTIONAL DRILLING

All underground cables and pipe lines shall be located accurately prior to commencing boring or punching operations.

Chain sprocket and V-belt drives shall be guarded.

The approaches to the operation shall be adequately marked by clearly visible signs and/or guarded by a flag person.

Where internal combustion engines are used in or near excavations, adequate ventilation shall be provided, or workers shall wear approved breathing apparatus.

All equipment used in boring or punching operations in close proximity to the excavation shall be adequately secured to prevent any movement toward the excavation.

Approaches to road and other bores shall be adequately sloped to prevent cave-ins.

Open bell holes will be barricaded and flagged.

9.4 GROUND DISTURBANCE OPERATIONS

9.4.1 Definition

Ground disturbance is a work operation or activity that results in a disturbance or displacement of the soil, unless the disturbance or displacement is solely a result of routine minor road maintenance, agricultural cultivation to a depth of less than 450 mm below the ground surface over a pipeline, or hand-digging to a depth of no more than 30cm below the ground surface.

9.4.2 Buried Structures

- First call must be made prior to any ground disturbance.
- All operators performing ground disturbance shall be trained in industry-accepted Ground Disturbance practices. The operator must possess and be able to produce the Ground Disturbance training certificate when on the jobsite.
- Excavating around utilities or pipelines shall be undertaken in conformity with the requirements of the owner of such utilities. If the owner of such utilities does not specify the requirements for excavating around underground services then the minimum requirement for exposing such utilities shall be as follows: No machine excavating shall take place within one meter of the underground service or utility.
- The underground service or utility shall be located and exposed by manual excavation (or hydro-vac) for one meter on both sides of the exposed utility or service and 600 millimeters (two feet) beneath the utility or service.
- All underground cables, conduits, gas lines, oil lines, water mains or other such lines shall be physically located and adequately marked before ditching operations are started. These shall be located accurately as to depth and, if less than 600 mm (two feet) below the depth specified for the machine-cut ditch, they shall be uncovered by manual excavation prior to ditching operations in the vicinity.

9.4.3 Ditching Machines

Wiping, oiling, adjusting or repairing shall not be undertaken while any part of the machine is in motion, except that oiling and greasing may be carried out by an oiler or service man with the power unit only left running if done under the direction of an operator who remains at the controls of the ditching machine.

- When adjustments or repairs are necessary all power units shall be shut down before such adjustments or repairs have commenced.
- Where the operator is required to carry out any of the foregoing functions unassisted, all power units shall be shut down before leaving the controls.
- No machine shall be operated unless the machine guards are installed and properly maintained. The ditching machine operators shall keep their helpers in sight or know where they are at all times.

- No manual cleaning of buckets shall be undertaken when the digging wheel is in operation.
- Operators and helpers shall not climb on the ditching machine while it is in motion.
- The operator shall not leave the controls of the machine unless both the main transmission and digging wheel are out of gear and the traveling brakes set.
- Swampers, spotters, signal persons and bystanders assisting, viewing or inspecting trenching operations shall be wearing a hard hat, safety footwear and high visibility and distinguishing apparel.

9.4.4 Backhoe and Dragline Operations

- Wiping, oiling, adjusting or repairing shall not be undertaken while any part of the machine is in motion, except that oiling and greasing may be carried out by an oiler or service man with the power unit only left running if done under the direction of an operator who remains at the controls of the machine.
- Where adjustments or repairs are necessary, all power units shall be shut down before such adjustments or repairs have commenced.
- Where the operator is required to carry out any of the foregoing functions unassisted, all power units shall be shut down before leaving the controls.
- The swamper shall stand clear of the swing and keep all other workers and equipment clear of the machine.
- The operators shall keep their swampers within sight or know where they are at all times.
- No person other than the operator or other authorized person is permitted in the cab while the machine is in operation.
- No boom or any portion of any mobile equipment shall be permitted to work in the vicinity of overhead power lines except as specified in the occupational health and safety regulation.
- Wire rope connections and hydraulic lines shall be of an approved type and inspection of the lines and connections shall be made daily by the operator.
- The operator is not permitted to leave the cab unless the bucket is lowered to the ground and the house and brakes are locked.
- The boom shall be left in a safe position when the equipment is not in use. All hydraulics shall be lowered or grounded.
- Operators shall face the machine using three-point contact with proper hand and foot holds when getting on and off equipment to avoid falls. Whenever possible the house should be offset enough to expose the track so the operator has a place to step when getting on and off of equipment.
- Swampers, spotters, signal persons and bystanders assisting, viewing or inspecting ditching operations shall be wearing a hard hat, safety footwear and high visibility and distinguishing apparel.

9.5 MOBILE EQUIPMENT OPERATION

9.5.1 Responsibility of the Supervisor

It shall be the responsibility of the supervisor to:

- Know the exact location of all buried utilities, have them marked, and know the requirements of all applicable regulations, the *Electrical Protection Act* and WCB regulations with regard to overhead power lines and buried cables. Ensure machines and other equipment are kept at a safe distance from the edge of an excavation or trench.
- Ensure that all operators perform a daily inspection of their equipment before starting work and that the inspection document is handed in to the supervisor. The supervisor must review each completed inspection checklist and any deficiencies noted will then be passed on to the on site mechanic to be repaired.
- Ensure that all equipment is parked properly and secured against unauthorized operation or accidental movement.
- Ensure that operators are competent in the operation of equipment. The operator competency form will be filled out and references checked, and the worker will be observed operating the equipment before being allowed to work on a job.

9.5.2 Responsibility of the Operator

It shall be the responsibility of the operator to:

- Read and understand all safety precautions and warnings pertaining to the machine being operated, and be familiar with the legal regulations applicable to the work being performed and the location of the work site.
- Perform a visual inspection of the equipment before starting work with the equipment. The inspection will be documented using the appropriate checklist and/or log book kept with the equipment.
- Know the signals for controlling equipment operations. Signals shall be given by one worker.
- Before digging, know the exact location of all buried utilities, and have them clearly marked and adequately exposed before machine digging.
- Ensure the machine is equipped with proper fire extinguisher(s) that have been inspected as recommended.
- Ensure all covers and guards are in place and secure.
- Ensure cable is not tangled, kinked or frayed (cable machine).
- Check for adequate turning or maneuvering clearance before operating.
- Be at the controls when operating the machine. The operator must never leave a piece of mobile equipment with the lifting or digging components in the raised position. All equipment with the engine running must be secured against accidental movement.

- Check for proper operation of all controls and protective devices while moving slowly in an open area, including left and right steering, all brakes, engine governor control level, and other devices such as lights, back-up alarm and horns and mirrors.
- Clean windshield, mirrors, and steps, grab bars and operator's compartment.
- Ensure no one will be endangered when operating a machine. Back machine away from an excavation before parking.
- Lower machine equipment/attachments before leaving the operator's cab when parking.
- Operate the equipment in accordance with the requirements of the *Electrical Protection Act* and occupational health and safety regulations when in the vicinity of power lines.
- Use proper side hill operation procedures, as recommended by the manufacturer, regulation and company safe work procedures.
- Ensure no one straddles the cable.
- Ensure tracks are kept clean and blocked in a manner to prevent freeze down.
- Check unusual noises or problems on equipment and record in equipment log book and inform supervisor.
- Ensure no person rides on or in equipment where suitable seating and seatbelts are not provided, e.g., hitching on equipment.

9.5.3 Powered Equipment Inspections

All powered equipment must be inspected to ensure that the condition of the equipment and the surrounding area are safe for work to begin.

The following is a list of the types of equipment that must be inspected daily before use:

Type of Equipment	Type of Inspections	Frequency
Side boom tractor	Visual using the provided log book and checklist	Daily before use
	Engineering inspection of lifting components	Yearly
Forklifts	Visual using the provided log book and checklist	Daily before use
	Engineering inspection of lifting components	Yearly
Excavators	Visual using the provided log book and checklist	Daily before use
	Buckets to have lifting eye particle tested	Yearly

Graders	Visual using the provided log book and checklist	Daily before use
Dozers	Visual using the provided log book and checklist	Daily before use
Loaders	Visual using the provided log book and checklist	Daily before use
Tractor trailer units	DOT pre-trip visual inspection using the log books provided	Pre-trip
	In trip load securement inspection	Within the first hour or 80 kilometers of trip
Crew trucks and pick-up trucks	Visual using the provided log book and checklist	Daily before use

The completed inspection form must be turned into the supervisor each week, and the supervisor must review the inspection document and arrange for any deficiencies to be corrected.

If the operator notes any deficiencies that are immediately dangerous to life and health, he or she must immediately take the mobile equipment out of service and tag it as “Out of Service.” The operator must then immediately inform his or her supervisor of the condition of the equipment. The supervisor must then arrange for repair of the equipment before it can be put back into service.

Any maintenance performed on the mobile equipment must be documented on the log book in the equipment. This will ensure that any operator coming to use the equipment can see what was repaired and when.

Maintenance records for each piece of mobile equipment will be kept in the Fort St. John office by the shop foreman. Each piece is identified by a letter and number sequence. For example, side booms are identified with “SB” and a number, such as SB107.

9.5.4 Fuelling Mobile Equipment

Refueling mobile equipment is a dangerous task as there is the opportunity for fire created by the heat of the engine and/or internal combustion of the engine.

Refueling must be done in a safe manner, in accordance with the following rules:

- Shut off engine.
- No smoking within 7.5 meters of the refueling point.
- Never refuel within 100 meters of a noted body of water or water way.
- Connect grounding clips between the fueling truck and the equipment being refueled.
- Spill kits must be available on the refueling truck and the equipment being refueled to clean up any spills that may occur.

9.6 EQUIPMENT WORKING ON STEEP SLOPES

9.6.1 Before Work Begins

- Before any work begins on steep slopes, workers and supervisors must check to see if safe work procedures have been developed for the critical tasks. Safe work procedures will be reviewed at the pre-job safety meeting where hazards will be addressed and discussed by all supervisors and workers.
- All work shall be done parallel to the slope (up and down), not cross slope.
- An adequate anchor cat must be available and used where the slope or conditions present a safety hazard.

9.6.2 After Work Begins

- After work begins a tailgate meeting will be held each day to ensure all requirements of the safe work procedures are followed.
- Hazards and procedures will be discussed during the daily tailgate meetings.
- Daily maintenance and safety checks will be performed on equipment including tracks, grousers, brakes, winch, winch line, tail chain and hook, and all fluid levels.

• NOTE: • If a safe work procedure has been developed for the critical tasks, it will take precedence over the foregoing.

9.6.3 Anchoring Procedure

Safe work procedures will include, but may not be limited to, the following:

- Each machine must have a designated swamper or signal person who is clearly visible to the operator at all times.
- Only specific work crew are allowed in the area, under direct supervision of the superintendent or his/her delegate. The anchor cat is to maintain a minimum of five wraps of winch line on the drum.
- Radio communication is required between machines, signal persons and supervisor.
- When anchoring of equipment is necessary, a written procedure is required specifying proper cable sizes, shackles, attaching methods and positions of signal persons. This procedure will be covered in a tailgate meeting prior to commencement of work.

9.7 EXPLOSIVES

9.7.1 Qualifications for Blasters

In most provinces blasters must be approved and certified through the applicable Workers Compensation Board, Ministry of Labour, or other government agency. No person is allowed to conduct or direct a blasting operation unless that person is a holder of a valid blaster's certificate where required by the authority having jurisdiction.

A worker engaged in loading, unloading, or conveying explosives will be trained in the proper means for handling the explosives, the hazards of fire and mishandling and the procedures to follow in the event of a fire or explosion.

A candidate for a blaster's certificate must be at least 18 years of age, demonstrate a satisfactory knowledge of the English language, both written and spoken, be physically capable of safely carrying out the duties of a blaster, and forward written proof acceptable to the examining officer that the candidate has had at least six months experience in blasting operations as an assistant to a blaster, and/or the candidate's character, knowledge, qualifications and experience would make the candidate competent to handle explosives.

9.7.2 Guidelines

If a blasting accident occurs that causes personal injury, or if there is any other dangerous incident involving explosives, whether or not there is personal injury, the employer must report the incident immediately to the Board, and forward a written report of the incident to the Board without undue delay.

The written report of the incident must contain:

- The date, time and location of the incident.
- The names and certificate numbers of all blasters involved.
- The names and occupations of any persons injured.
- The types of explosives, detonators and blasting machine used.
- A factual account of events including the blaster's log records.
- The action taken by the employer.

The blaster of record must record in a log the pre-blast loading details and the results of the post-blast site inspection. Blasting logs must be maintained at the blasting site, available for inspection by an officer, workers and worker representatives. The blaster must maintain a personal log of all blasting work that the blaster has performed.

The employer must ensure that blasting logs are kept for at least five years after completion of the blasting operation.

Explosives at the worksite must be guarded or contained in secured day boxes until used or returned to storage magazines.

The supervisor must ensure that the location of a magazine in which explosives are stored, and any restrictions on access or activity around the magazine area, are clearly communicated to all workers.

Blasting explosives and detonator products must be kept and handled separately until the last most practicable moment, before bringing them together. Before explosives are transported, the supervisor/contractor must establish suitable written emergency procedures, and must ensure that all workers who may be affected are adequately instructed in the procedures.

A conveyance transporting explosives must be equipped with at least two fire extinguishers, of a type capable of quickly extinguishing gasoline, oil, or electrical fires.

Explosive materials must be stored, transported, handled and used in the manner recommended by the manufacturer. Explosive materials or accessories that have deteriorated, or are believed to be defective, must not be used and must be handled and disposed of in a safe manner following the manufacturer's recommendations.

9.8 FIRE AND EXPLOSION HAZARDS

9.8.1 Explosive Atmospheres

Surerus works in environments that are potentially hazardous both from a toxic and explosive perspective. Potential exposure to explosive atmospheres exists in oilfield facility and pipeline construction and maintenance environments.

It is imperative that all work conducted in hazardous atmospheres is done with the appropriate controls in place. Permits are required to assess the potential explosive hazard. Field Level Hazard Assessments are to be conducted before performing work in a potentially explosive atmosphere.

No worker shall enter or work in an area if more than 20% of the lower explosive limit is present. If it is not practicable to maintain the airborne concentration of a flammable gas or vapour below the applicable exposure limit, for example, in a temporary situation or an emergency:

- (a) Only the minimum number of workers necessary for the work may be exposed;
- (b) Every worker exposed must be adequately trained and equipped to safely perform the required duties;
- (c) The concentration of the flammable gas or vapour must not exceed 20% of the lower explosive limit (LEL); and,
- (d) In a life-threatening emergency only, exposure of emergency response workers is permitted above 20% of the LEL, provided that only those qualified and properly trained and equipped workers necessary to correct the unsafe condition are exposed to the hazard and every possible effort is made to control the hazard while this is being done.

Internal combustion engines are not to be inside the designated atmosphere envelop. Diesel engines must have a Positive Air Shut-Off device to ensure engine runaway does not occur should there be a leak while inside the explosive envelop.

Fires can start anywhere, at any time; good housekeeping is therefore essential in preventing fires. All employees must know which fire extinguisher to use and how to use it. Where temperature is a factor, ensure that care is taken in selecting the right extinguisher.

Fire extinguishers must be properly maintained and easily accessible at all times.

All Surerus vehicles and equipment are equipped with fire extinguishers.

9.8.2 Types of Fires

Class of Fire	Description of Fire	Fighting the Fire
Class A	Wood, paper, rags, rubbish and other ordinary combustible materials	<u>Recommended extinguishers</u> Water from a hose, pump type water can or pressurized extinguisher, or soda acid extinguisher <u>Fighting the fire</u> Soak the fire completely, including the smoking embers.
Class B	Flammable liquids, oil, and grease, and pressurized gas fires	<u>Recommended extinguishers</u> ABC units, dry chemical, foam and carbon dioxide extinguishers <u>Fighting the fire</u> Start at the base of the fire and use a swinging motion from left to right, always keeping the fire in front of you.
Class C	Electrical equipment	<u>Recommended extinguishers</u> ABC units, carbon dioxide and dry chemical <u>Fighting the fire</u> Use short bursts on the fire. When the electrical current is shut off on a Class C fire, it can become a Class A fire if the materials around the electrical fire are ignited.

9.9 FUELLING OF EQUIPMENT

- Stationary storage fuel tanks shall be vented and kept clear of buildings, and if not buried, should be grounded.
- Gasoline must be carried in a certified closed container that is adequately vented.
- When split fuel loads are transported, the dome openings and draw off faucets shall be identified as to the products contained. Products carried must be plainly identified by stencil on the tank compartments along with TDG signs.
- An outer protective shield shall be placed on the muffler and the tail pipe shall be extended to a point clear of the unloading connections of the fuel tank.
- Each fuel truck shall be provided with a fire extinguisher of not less than 7-kg (15-pound) capacity of an approved type.
- The fuel truck driver shall inspect the tanks daily for leaks and ensure that the static cable is attached.
- Smoking is prohibited while fuelling is in progress. There shall be no open fires, welding, etc. in the fuelling zones.
- Motors on equipment shall be stopped before fuelling.
- In fuelling equipment, the metal fuel nozzle shall be kept in contact with the lip of the tank to eliminate any static accumulation.
- Care shall be taken to not overfill any equipment fuel tanks.
- Storage tanks will be grounded for fuel transfer.
- Drivers shall keep their equipment in good condition and follow all applicable rules under the *Transportation of Materials and Equipment and Transportation of Dangerous Goods* regulations.

9.10 LOWERING OF PIPE INTO DITCH

All pipe lowering must be directed by the foreman or his/her delegate.

Signals to the tractor operators and other orders shall come from the foreman or his/her delegate alone. Standard signals are to be used.

While not in use, the belt, slings, block, and boom lines must be secured to the boom while the tractor is moving.

No workers are to be in the ditch, on the pipe, or between the pipe and the ditch when the pipe is being lowered into the ditch.

9.11 PIGGING AND TESTING

Pigging and testing of pipelines shall be carried out in accordance with the applicable regulations.

In all instances where it is necessary to deviate from practices outlined in the following section, a safe work permit signed by an authorized representative of the company concerned shall be obtained. This permit shall outline the conditions to be observed and shall be issued only when adequate precautions have been taken to ensure the safety of anyone in the area.

A permit shall be obtained for each job, one copy to be mailed to the appropriate government agency and a copy retained by the job supervisor and available for inspection. Before removing the pig catchers or test fittings, pressure shall be relieved from each end of the line.

-

Only approved pipe fittings shall be used.

-

Pigs propelled by compressed air will follow these guidelines:

- The dispatching end of the pipeline shall be sealed with a fitting welded securely to the pipe line.
- The receiving end of the pipe shall be equipped with a pig catcher or trap so that there is no danger of a pig being blown free of the line at the end of its run. All pig traps are to be welded to the pipe.
- All air hoses, fittings, valves, etc. shall be adequate for the pressure used and be maintained in good condition.
- During a pig run, all persons in the vicinity shall be kept well clear of pipe ends.
- The pressure shall be released through suitable valves before fittings of any kind are loosened or removed from the pipeline.

SECTION 15:

Low-pressure testing of pipelines up to 700 kPa (100 psi):

- Pipe ends shall be sealed with a fitting welded to the pipe for all lines larger than 152 mm (6 inches) in diameter. Welded caps are used for all sizes of pipe.
- When a line is under pressure all persons shall be kept clear of pipe ends.
- Fittings shall not be loosened or removed from the pipe until all internal pressure has been released.

SECTION 16:

High-pressure testing of pipelines over 700 kPa (100 psi):

- The pipeline shall be sealed only with welded, flanged or threaded fittings rated to a pressure at least equal to the maximum working pressure of the pipe line.

- Only those persons concerned with the testing are allowed in the immediate vicinity of pressure pumps and pipe ends or exposed sections during the test.
- Pressure shall be released from the line before any loosening or removal of fittings is permitted.
- If blanks or blinds are used, they shall have a manufacturer's mark, have rated capacity, be maintained in good condition, and be designed by an engineer as long as it conforms to API standards or other acceptable standards.
- End-to-end communication will be in place for all pigging and testing operations.
- Pipe must be lowered onto skids before test process begins.

9.12 PIPE BENDING

- No workers except those actually engaged in the bending operation are permitted on or around the bending machine.
- Tag lines must be used for controlling overhead-suspended loads (pipe), and to keep workers away from the load, tag lines be a minimum of eight meters in length.
- Personal protective equipment including high visibility and distinguishing apparel and hearing protection must be worn when working near the pipe bending process.
- Workers are not permitted to ride on the pipe under any circumstances.
- Slings must be inspected daily and discarded if worn or damaged. Always maintain eye contact with the operator when working around the tractor or bending machine.

9.13 PIPE HANDLING

9.13.1 Unloading Pipe

- Extreme care shall be exercised in spotting the boom equipment to unload pipe so that there is adequate clearance of overhead lines.
- All workers shall keep in the clear when cutting steel bands or releasing the chains or straps. Worker(s) must have an adequate, unobstructed escape path for safe egress from the hazard area around the load.
- If stringers and blocks are not used between the tiers of pipe, adequate support shall be applied against the load until the worker(s) have removed the load restraints. This shall be accomplished by parking the boom or grapple of the loader against the load to prevent any pipe from rolling off the load until the worker(s) are clear.
- Tag lines shall be the only acceptable method for workers to guide or move suspended loads and must be of sufficient length to enable workers hooking pipe to stand clear while guiding the pipe.
- All slings, hooks, cables and tag lines shall be inspected daily by the operator and shall be repaired or replaced when found defective.
- Workers shall ensure that hooks are securely engaged in the ends of the same pipe before it is raised. Front hook must be engaged first.
- Where a ramp is used for unloading pipe, it shall be of sufficient strength and length and shall be securely fastened to the truck side and braced at the lower end.
- Stake pins shall be installed on the pipe trailer with a length equal to one-and-a-half times the diameter of the largest pipe on the trailer.

9.13.2 Stockpiling Pipe

- Pipe racks must be substantially constructed and placed level on a solid foundation.
- Provision must be made to prevent pipe from accidentally rolling off the storage racks using stake pins with a length equal to one-and-a-half times the diameter of the largest pipe on the rack.
- Pipe shall extend three or four feet beyond the cross timbers and workers shall work at the ends of the pipe keeping hands clear of pinch points.
- Where a ramp is used for stockpiling, it shall be of sufficient length to allow for a gradual incline.
- Each tier of pipe shall be adequately blocked when stringers are used between the tiers.
-

9.13.3 Stringing Pipe

- When hauling pipe by truck, sled or tractor boom, the load shall be adequately and properly tied or boomed in place.

- Bulkheads or other effective means shall be installed to protect the driver of any vehicle transporting materials, including pipe, which is likely to shift during rapid deceleration of the vehicle or for protection on steep slopes.
- Adequate batter boards will be used on all loads where slope or conditions will become a safety factor. When using batter boards, they must be placed on each tier of pipe.
- All cats towing atthey wagons pulling pipe must be equipped with a ROP's canopy and this combination must use an anch or cat on slopes. An adequate anchor cat must be used in all cases, when the slope or conditions present a safety hazard. If a tailchain with a hook is used for towing or anchoring, the hook must be taped or wired to prevent dislodging when slack.
- Consideration shall be given to using trucks versus atthey wagons to move pipe on steep slopes. This eliminates an extra joint created by the atthey wagons and provides brake control.
- Drivers shall ensure that proper stakes are installed in the trailer pockets to prevent pipe from rolling off the trailer. The length of the stakes shall be equal to one-and-a-half times the diameter of the largest pipe on the load.
- Drivers shall ensure that the pipe on the truck and/or trailer will remain stable when binders are released.
- Signs and flags shall be placed on each side of the point on a highway where trucks are entering and leaving the right-of-way or secondary road.
- Workers shall keep their hands clear of the ends when pipe is being butted together.
- Loads of skids being hauled to the line shall be secured to the truck.
- The front hook shall always be hooked up first when stringing pipe
- Workers must never be on the trailer when it is in motion.
- Pipe cones used must be properly rated for weight and size of pipe being strung

9.13.4 Tractor Operations

- No worker shall be allowed to ride on any part of a tractor, skid sloop or any unit being towed except where an approved seat is provided.
- When stopped for any reason and the operator dismounts the unit, it shall be locked or rendered incapable of being started by an unauthorized person.
- Pipe shall never be picked up or lowered while any worker is between the tractor and the pipe.
- Pipe shall never be moved, carried or swung over workers.
- Workers shall stand clear of booms when loads are being lowered or lifted and the tractor operator shall not lift or lower until workers are in the clear. No worker shall stand or position himself in any way under a boom or suspended load.
- The guiding of lines or cables into drums by means of the hand or foot is prohibited. A stick or iron bar shall be used for this purpose.
- Wire rope shall be securely fastened to drums and at least five full turns of wire rope shall be kept on the winding drums at all times.

- Wire rope connections shall be of an approved type and inspection of the lines and connections shall be made daily by the operator.
- Boom pins and sheave blocks shall be inspected daily by the operator and shall be replaced if found defective.
- Booms and blades shall be left in a safe position when not working.
- Boom operators shall do a daily safety check prior to operating equipment at the start of a shift. Results of the inspection shall be entered in the log book daily.
- No operator shall be permitted to leave the controls of the machine while a section of pipe is suspended more than 15 centimeters (six inches) above the ground unless the pipe is blocked to prevent accidental movement and the controls are locked out.
- Operators of all ROP-equipped machines, including side booms, with a roll over protective structure shall wear seat belts that are provided.
- Side booms shall not be driven on the right-of-way with the load hook dangling in a position hazardous to workers or with the boom more than 30 degrees from the vertical position.
- No worker shall hold onto any part of the rigging or the machine while the machine is in motion.
- Lock skids shall be employed in all instances where a danger of shifting pipe exists. Defective skids shall be removed from service.

9.14 POWER LINES

9.14.1 Signage

At all power line locations, signs labelled **DANGER — POWER LINES** shall be installed before clearing commences. These signs shall be placed and maintained 25 meters (80 feet) on each side of the power line in such a location that they may be seen from all equipment travelling the right-of-way.

High visibility posts will be set on either side of a power line crossing point. These posts will have a high visibility banner between them to indicate the limit of approach. Until voltage of a power line is determined the limit of approach is seven meters. Surerus supervision must contact the power supplier to determine the voltage in the line.

General Limits Of Approach		
Voltage	Minimum Distance	
Phase to Phase	Meters	Feet
Over 750 V to 75 KV	3	10
Over 75 kV to 250 kV	4.5	15
Over 250 kV to 550 kV	6	20

9.14.2 Working Close to Overhead Power Lines

- All managers and supervisors shall be familiar with the occupational health and safety regulation with regard to working close to energized high voltage equipment and conductors.
- WCB regulations regarding working close to power lines shall be applied in all circumstances where Surerus' work is performed in the proximity of energized high voltage equipment and conductors, both overhead and subsurface conditions.
- Operation of mobile equipment on highways or traveling to or from a location does not require assurance in writing (i.e. Form 30M33).
- Any equipment being operated near a power line will have a spotter working with them to ensure they do not breach the limit of approach to the power line.
- The safe limit of approach distances apply to a load, equipment or building that is transported under energized overhead power lines when the total height, including truck and equipment is greater than 4.15 meters. They do not apply below 4.15 meters.
- Supervisors shall ensure that where power lines may contact Surerus' equipment in normal use, the hydro company is to be immediately notified to modify lines to meet the specifications of the permit.
- Where inadvertent movement close to power lines might cause contact, the supervisor shall ensure completion of a Form 30M33 or other acceptable assurance in writing, from WorkSafe BC or the BC Hydro regional office.

- Managers and supervisors will ensure that all workers who work close to power lines are familiar with the relevant regulations and procedures before commencing work on the job site.

9.15 PREPARATION OF RIGHT-OF-WAY

The following conditions shall apply in clearing, grading, and grubbing of right-of-ways.

9.15.1 Roadside Hazards

Dangerous trees

Supervisors and fallers shall ensure that all dangerous trees adjacent to the right-of-way are removed prior to workers (other than fallers, buckets and clearing equipment) entering the right-of-way. This requires ongoing assessment of the right-of-way for dangerous trees and a final assessment by the supervisor prior to the commencement of pipeline work.

Dangerous trees include any tree that is hazardous to workers because of: location or lean; physical damage; overhead hazards; deterioration of the limbs, stem or root systems; or a combination of these.

Dangerous trees that are hazardous to workers or road users must be removed or cleared for a safe distance back from the roadside or right-of-way. This area shall include dangerous trees located within one-and-a-half (1.5) tree lengths from the area that a worker would be exposed to the hazard. If the downhill slope to the work area is greater than 30%, the distance must be increased proportionate to the slope.

Sight limiting debris

Brush, foliage or debris which prevents an adequate view by a vehicle operator of traffic approaching at roadway intersections or sharp curves shall be cleared and all possible precautions must otherwise be taken to control the hazards created by limited sight distance.

Unstable material

Loose rocks, stumps, or other unstable materials that are hazardous to workers or road users must be removed or cleared for a safe distance back from the roadside or right-of-way banks.

9.15.2 Falling and Bucking

- Fallers and buckers shall ensure that obstructions and a safe escape are cleared before a tree is felled or bucked.
- Fallers shall ensure that all workers are clear of the hazardous area by two tree lengths before a tree is felled. Buckers shall ensure that all workers are clear of the hazardous area before a tree is bucked.
- Where practicable, snags shall be felled before the green timber and into the open.
- All brush and other objects that might catch the saw shall be cleared away prior to bucking a log. Logs shall be bucked from the uphill side. When a tree starts to fall, fallers shall quickly get away to a safe distance or to adequate protective covering.
- When power saws are being used, sawyers shall stop the saw during any major change of position.

- Power saws must be allowed to cool before refueling. Smoking is prohibited during refueling operations.
- Power saw protective leg wear shall be used by all fallers and buckers.
- Crews burning brush on the right-of-way shall use extreme caution to prevent the possibility of sparks igniting a forest fire.
- Supervisors shall ensure that traffic control is in place when falling operations are taking place along the pipeline right-of-way and also ensure that all workers are accounted for at the end of each shift.
- The use of highly volatile liquids to light or rekindle brush-clearing fires is prohibited.
- All power saw operators must be certified as required under B.C.'s occupational health and safety regulation.

9.15.3 Temporary Crossings

- All highway, road, and railroad crossings must be marked with warning signs.

9.15.4 Bulldozer Operations

- Bulldozers shall not be operated until the brush gang is in the clear.
- Bulldozers shall be equipped with ROP's canopy and screen guards if pushing brush or trees.
- The operator shall keep the swamper within sight at all times.
- The blade shall be lowered to the ground or shall be adequately blocked when the equipment is not in use.
- Standard tractor logging signals shall be used.
- No worker other than the operator shall ride on the machine unless a seat with a seat belt is provided.
- When tractors are equipped with a winch, the operator shall be protected from the hazard of flying lines by a substantial rear cab guard.
- When the operator leaves equipment unattended the unit shall be locked or rendered incapable of being started by an unauthorized person.
- Where an unattended unit is on sloping ground or adjacent to an excavation, the unit shall have its brakes applied and the wheels blocked (if so equipped), and the blade lowered to prevent movement.

9.16 PRIMING

- When handling primer and/or pastes, rubber gloves and suitable clothing must be worn. Some priming may require eye protection and/or respirator. See the material safety data sheets (MSDS) for the specific product to determine the appropriate personal protective equipment to be used.
- All controlled products received on the jobsite must comply with WHMIS legislation, including product labels.
- MSDS shall be maintained on site for products that fall under WHMIS legislation.

9.17 ABRASIVE BLASTING OPERATIONS

Purpose

To ensure all workers comply with existing legislation requirements regarding all sand blasting operations in accordance with operational procedures. To ensure a worksite is safe by providing proper training, personal protective equipment and environmental awareness of all hazards associated with this work practice.

Surerus is committed to using the safest blasting media available. When abrasive blasting operations occur, strict guidelines must be followed to ensure protection of the worker, environment and/or the public:

- Ensure an adequately clean area on the pipe, metal or area where the work is taking place.
- Follow general guidelines for safe abrasive blasting operations.
- Establish administrative controls on the safe operational procedures, CSA Z94.4-02 "Selection, Use and Care of Respirators," CSA Z180.1-00 "Compressed Breathing Air and Systems," Section 39 "Use of Crystalline Silica in Abrasive Blasting" in the Occupational Health and Safety Code (AB) and Section 255 of the Occupational Health and Safety code (AB).
- Ensure abrasive blasting materials containing crystalline silica are replaced with less toxic materials, when practicable.

Hazards

Workers involved in blasting operations must be aware of the following potential hazards:

- dust created by blasting operations (glass bead, walnut shells)
- allergies to nut products
- dust from material removed (lead based paints, rust)
- sparks caused by blasting operations
- static electricity build-up
- noise exposure (in excess of 110dBA)
- heat stress
- physical exhaustion/fluid imbalance
- neck and back strain from equipment or position

Regulations

Blasting operations must follow the applicable legislation and requirements under the Occupational Health and Safety Act, Regulations and Codes, and the B.C. Environmental Management Act. Non-compliance with these requirements carries legal implications.

Standards

Preparation of the worksite will include:

- Pre-job hazard assessment.
- Identify what is being removed and how to assist in identifying substances with potential health hazards and chemical-controlled amounts.
- Pre-inspection of the abrasive blasting unit to ensure functioning within normal limits and CSA requirements.
- Equipment (truck) inspection.
- A toolbox safety meeting with all involved in the area.
- Ensure all necessary permits have been issued.
- Ensure that the unit and object (metal) are grounded to prevent a static charge build-up or the development of a charge.
- Ensure that all personal protective equipment is available and used.
- Refer to the code of practice for required respiratory equipment.
- Ensure all respiratory equipment has carbon monoxide monitors.
- Set up signs indicating blasting operations in progress at the edge of the designated zone.

Procedure

- The compressor, hose, nozzle and operator must be properly grounded to prevent build-up of static electricity.
- Ensure the work area is well ventilated.
- Only properly protected workers are to be in the operation work zone.
- The operator must be able to stop the flow of material immediately.
- Clean-up of the area must be done after the blasting has been completed.
- Blasting operator must be sure to clean off his or her clothing and/or skin before leaving the area for the day or consuming food.
- Food must not be consumed in the blasting area to avoid contamination.

Precautions

- Minimize any release of dust.
- Only approved respiratory equipment shall be used to prevent injury or harm to the operator and workers within the area.
- Safe handling requirements for abrasive blasting material, or materials removed from the surfaces, must be addressed.
- Approved personal protective equipment must be used to guard against injury to the operator.
- A Field Level Hazard Assessment must be completed and reviewed by all workers.

Personal Protective Equipment

A nozzle or jetting gun operator must wear personal protective clothing and equipment on the body, hands, arms, legs and feet, including the metatarsal area. The protection must be made of canvas, leather or other material that will protect the worker's skin from injury in the event of contact with the flow from the nozzle. Unless the process is isolated from the operator in a separate cabinet, suitable respiratory protective equipment must be provided and worn whenever abrasive blasting or a similar operation is conducted.

9.18 RADIOGRAPHIC INSPECTION

Surerus employees do not perform any radiographic inspection. All radiographic inspection is done by qualified contractors licensed to perform this work.

In all instances, where X-ray or gamma-ray equipment is being used, the use, storage, handling, transportation or disposal of radioactive substances shall be in compliance with regulations under the *Atomic Energy Control Act* (Canada) and any applicable federal or provincial legislation. Radiographic contractors must display a copy of their license at a public location at the facility or mobile unit. All radiographic work must be performed under the direction of a person responsible for radiation safety in the area.

The radiation safety supervisor must provide any necessary instructions concerning radiation hazards and safe working practices to all workers whose duties necessitate the handling of radioactive material or the operation of any machines that produce radiation. Where possible the radiation supervisor must use affected employees to develop radiation safe work practices for their work area. If a worker exceeds or may exceed an action level for ionizing radiation or action level for non-ionizing radiation, the supervisor must develop and implement an exposure control plan. The instructions to workers developed must be posted or otherwise available in the work area or near the applicable equipment controls. Unless exempted by the Board, if a worker exceeds or may exceed the action level ionizing radiation, the supervisor must ensure that the worker is provided with and properly uses a personal dosimeter acceptable to the Board.

The radiation safety supervisor must ensure that all persons working with radiation machines or radioactive materials are properly instructed in the use of all necessary safeguards and procedures, and are supplied with such auxiliary devices as may be necessary for safety.

During radiography, by means of x-ray machines or radioactive sources, distinctive warning signs, i.e., **DANGER — RADIATION AREA** must be displayed.

The designated radiation hazard area must be determined by the use of a radiation survey meter. No person shall use a radiation survey meter that has not been calibrated within the 12 months preceding its use.

A responsible person shall be present when a radioactive source is outside its container, or a gamma camera or X-ray machine is in use.

When not in use, radioactive material must be stored in a shielding camera or locked container and must be marked with a label stating **DANGER — RADIOACTIVE MATERIAL**. A nameplate must also be affixed to the container, showing the owner's name, and the maximum quantity and kind of radioactive material. The storage container must be kept in a locked enclosure or room at the outside of which the radiation level must be less than 2% milliroentgen per hour.

A worker's exposure to ionizing radiation must not exceed any of the following:

- An annual effective dose of 20 mSv
- An annual equivalent dose of
- (i) 150 mSv to the lens of the eye

- (ii) 500 mSv to the skin, averaged over any 1 cm² area at a nominal depth of 7 mg/cm², regardless of the area exposed, or
- (iii) 500 mSv to the hands and feet.
-

The exposure of workers to ionizing radiation must be kept as low as reasonably achievable below the exposure limits. A worker's exposure to non-ionizing radiation must not exceed the exposure limits specified in these regulations.

Except as otherwise determined by the Board, the supervisor/contractor must conduct a radiation survey for ionizing radiation in accordance with the standard practice specified under the applicable safety code or the regulations under the *Nuclear Safety and Control Act* (Canada):

- At the times required by the safety code or regulations, as the case requires
- If equipment has been damaged or modified, or
- If there is an indication of an unusually high exposure of a worker to ionizing radiation.

The supervisor/contractor must:

- Maintain and make available to the Board records of radiation surveys for at least 10 years, and records of exposure monitoring and personal dosimetry data for the period the worker is employed plus 10 years.
- Make the records available to workers.

9.19 RIGGING AND CRANES

The working load on wire ropes, chains, slings, hooks and fittings shall not exceed the safe working load warranted by the manufacturer. When warranties of the safe working load are not obtainable the maximum rated load shall NOT be more than:

- One-fifth of the ultimate breaking strength of the weakest component of the rigging, or
- One-tenth of the ultimate breaking strength of the weakest component of the rigging, when the rigging is used as a means of supporting workers.

Supervisors and workers must ensure that any wire rope, alloy steel chain, synthetic fibre rope or metal mesh slings purchased meet the requirements of ASME Standard B30.9-1996, "Slings."

Rigging fittings must be marked with the manufacturer's identification, product identifier and the working load limit (WLL) or sufficient information to readily determine the WLL.

An alloy steel chain sling must be permanently identified with the size, the manufacturer's grade, the WLL, length and number of legs, name or mark of the sling manufacturer.

Synthetic fibre web slings must be permanently identified with the manufacturer's name or mark, manufacturer's code or stock number, working load limits for the types of hitches permitted, and type of synthetic web material. Slings shall be protected from sharp corners of the load and adjusted to equalize the strain before the load is lifted. Slings must be stored in such a manner so as to ensure it is not damaged during storage.

Ropes, wire ropes, slings, chains, hooks, and fittings shall be inspected thoroughly before each daily use. When they are found to have deteriorated to such an extent as to make them unsafe for use they shall be discarded. When shackles are used, shackle pins shall be secured to prevent accidental withdrawal.

Where a wedge socket connector is used as a wire rope terminal, the dead end of the rope shall be secured with a single cable clip fastened together with the looped dead end of the wire rope or a separate strand of wire rope. It is not recommended that the cable clip be fastened back to the load-bearing portion of the wire rope. Where possible the NEW terminator style wedge should be used with the cable clip fastened to the wedge along with the dead end of the cable.

Gloves shall be worn by workers when handling wire rope. The pull on an eye-bolt shall always be in line with the bolt. A lift shall never be made with a kink, knot or twist in a chain or wire rope.

Rejection Criteria for Synthetic Fibre Web Slings

Supervisors and workers must ensure that a synthetic fiber web sling is

permanently removed from service if it is damaged or worn as follows:

-
- The length of the edge cut exceeds the web thickness.

- The depth of an abrasion is more than 15% of the webbing thickness, taken as a proportion of all plies.
- The total depth of the abrasion on both sides of the webbing is more than 15% of the webbing thickness, taken as a proportion of all plies.
- The depth of the warp thread damage is up to 50% of the webbing thickness and the damage
 - is within 25% of the sling width of the edge, or
 - covers 25% of the sling width.
- The warp thread damage is as deep as the sling is thick
 - in an area that is within 25% of the sling width of the edge, or
 - over an area that is more than 12.5% of the width of the sling.
- Weft thread damage allows warp threads to separate over an area that is wider than 25% of the sling width and longer than twice the sling width.
- A synthetic fibre web sling must be permanently removed from service if
 - part of the sling is melted, charred or damaged by chemicals
 - stitches in load bearing splices are broken or worn, or
 - end fittings are excessively pitted or corroded, cracked, distorted or broken.
- A synthetic fibre web sling that is permanently removed from service under the above criteria must be physically altered to prevent its further use as a sling.

Rejection Criteria for Wire Rope

Wire rope must be permanently removed from service if the following conditions are noted:

- Wear or corrosion affects individual wires over more than one-third of the original diameter of the rope
- There is evidence that the rope structure is distorted because of kinking, bird caging or any other form of damage
- There is evidence of heat or arc damage, or
- The normal rope diameter is reduced, from any cause, by more than
 - 0.4 mm if the normal rope diameter is 8 mm or less
 - 1 mm if the normal rope diameter is more than 8 mm and less than 20 mm
 - 2 mm if the normal rope diameter is 20 mm or more and less than 30 mm, and
 - 3 millimetres if the normal rope diameter is 30 mm or more.

Running wire rope must be permanently removed from service if the following conditions are noted:

- Six or more randomly distributed wires are broken in one rope lay, or
 - Three or more wires are broken in one strand in one rope lay.

Hooks

All hooks shall be of forged steel or built-up steel and no hooks shall be used for purposes for which they were not designed. All hooks used must have a safety latch, mousing or shackle if the hook could cause injury if it is dislodged while in use. Hooks that have opened more than 15% of the normal throat opening measured at the narrowest point, or twisted more than 10% from the original plane of the hook, or are cracked or otherwise defective, shall be permanently removed from service.

Hooks, shackles, etc., must have the name of the manufacturer and capacity indicated.

When U-bolt type clips are used for fastening wire rope, the U-bolt shall be installed so that it bears on the short or “dead” end of the rope and the number of clips and their spacing and torque shall be as follows:

Figure 9.1

Diameter of Rope		Number of clips	Spacing between clips (centre to centre)		Torque	
mm	inches		mm	inches	newton meters	foot pounds
6	1/4	2	38	1 1/2	20	15
8	5/16	2	51	2	41	30
10	3/8	2	57	2 1/4	61	45
11	7/16	2	64	2 1/2	88	65
13	1/2	3	76	3	88	65
16	5/8	3	102	4	129	95
19	3/4	4	114	4 1/2	176	130
22	7/8	4	133	1/4	305	225
25	1	4	152	6	305	225
29	1 1/8	5	178	7	305	225
32	1 1/4	5	203	8	488	360
38	1 1/2	6	229	9	488	360
44	1 3/4	7	267	1 1/2	630	465
51	2	8	305	12	881	650
54	2 1/8	8	330	13	881	650
57	2 1/4	8	356	14	881	650

Use double the number of clips specified for a single loop termination when forming a lap splice, or use the number of clips specified for each loop termination when forming a double loop splice.

Double saddle type clips shall be used in similar numbers and spacing. Sheaves and drums that have become chipped or having worn or broken flanges, rims, spokes, hubs or grooves, shall be replaced.

The minimum diameter of sheaves used with wire ropes shall be 16 times the diameter of the wire rope. Wire ropes shall be securely fastened to drums and at least five full turns of wire rope shall be kept on winding-drums at all times.

The guiding of the lines onto drums by means of the hand or foot is prohibited. The proper spooling of lines onto drums shall be ensured by the use of a stick or steel bar.

9.20 CRANES AND SIDE BOOMS

Cranes and lifting devices must be maintained and operated according to manufacturer's specifications and meet the applicable regulations in the jurisdiction in which they are being operated.

No crane or lifting device may be used to lift more than the manufacturer's rated capacity.

All cranes and lifting devices with a capacity over 900 kg rating must have the lifting capacity posted and legible on the lifting device.

All lifting devices must have a legible and current load chart posted where the operator can read the chart from the operator's seat or position.

A mobile crane or boom truck must be inspected at least once every 12 months in accordance with good engineering practice, to ensure it meets the crane or boom truck manufacturer's specifications, the requirements of the applicable design or safety standard, and the requirements of the regulations. A mobile crane or boom truck must not be used after an inspection unless a professional engineer certifies it is safe for use on the basis of that inspection.

The inspection records will be kept by the Surerus shop foreman.

Only competent workers will be allowed to operate a lifting device. All workers operating a lifting device will be assessed by their supervisor and the competency form signed off before being allowed to operate the lifting device.

Each day before the lifting device may be used the provided log book (checklist) must be filled out to ensure the device is safe for operation. Each crane has a log book stationed near the controls. The operator must be familiar with previous entries.

All side boom operators will perform a pre-use inspection on the lifting component of the machine. This will be logged in the inspection book provided with the machine. Any defects found during inspection or use of a crane or hoist must be recorded in the inspection and maintenance record system and be reported immediately to the supervisor, who must determine the course of action to be taken. If a defect affects the safe operation of the crane or hoist, the equipment must not be used until the defect has been remedied.

Prior to using a lifting device the operator must ensure that the lift is safe to perform. At no time is it permitted to conduct a lift unless it is absolutely safe to do so.

At no time is an operator permitted to perform a lift where the load must pass over workers. The workers must be moved to a safe location before the lift is started. Loads must be positioned as close to the ground as possible before unloading.

When the operator of a crane or hoist does not have a clear and unobstructed view of the boom, jib, load line, load hook and load throughout the whole range of the hoisting operation, the operator must act only on the directions of a qualified signaller who has a clear view of the worksite. The operator of the crane or hoist must stop the operation of the equipment on receiving a stop signal from any person.

Loads to be unhooked by a worker must be safely landed and supported before the rigging is detached.

Each mobile crane or side boom must be equipped with a 20-pound dry chemical fire extinguisher located within reach of the operator.

On and after July 1, 2007, a mobile crane, tower crane or boom truck must be operated only:

- (a) By a person with a valid operator's certificate issued by a person acceptable to the Board,
- (b) In accordance with any conditions stipulated on the certificate issued by a person acceptable to the Board, and
- (c) In accordance with any conditions stipulated on the certificate.

9.21 RIVER CROSSINGS

9.21.1 Bridge Crossing

Fall protection equipment shall be worn by workers when working over hazardous water or elevations greater than three meters (10 feet) above ground or water level when it is impracticable to provide adequate platforms or staging for the performance of their duties.

Life-lines and safety straps must be fastened and used in a manner that will limit the free fall of a worker to the least practicable amount and in no case to exceed 1.2 meters (four feet).

When exposed to a risk of drowning the worker shall be supplied with and shall wear an approved buoyancy device or personal flotation device. In addition, a standby boat and attendant shall be available downstream for rescue purposes.

9.21.2 Under-Water Crossing

Persons working from boats or rafts shall wear approved buoyancy or personal flotation devices.

Dredges shall be equipped with at least two approved life-rings. Each ring shall be provided with 15 meters (50 feet) of attached 10-millimetre (3/8-inch) life-line.

9.22 SLOPING OR SHORING OF EXCAVATIONS

Any time a worker is required to enter an excavation over four feet deep the slope of the excavation walls shall be in accordance with the specifications provided by a professional engineer or the Workers' Compensation Board.

Classification of soil types

Soil characteristics	Soil type		
	Hard and compact soil	Likely to crack and crumble soil	Soft, sandy or loose soil
Consistency	Hard, very dense in compactive condition	Stiff, compact in compactive condition	Firm to very soft, loose to very loose in compactive condition
Ability to penetrate	Only with difficulty by a small, sharp object	With moderate difficulty with a small, sharp object	With ease
Appearance	Dry	Damp after it is excavated, has low to medium natural moisture content	Appears solid but flows or becomes unstable when disturbed. Can be dry, running easily into a well-defined conical pile, or wet.
Ability to excavate with hand tools	Extremely difficult	Moderately difficult	With ease
Water seepage	Shows no signs of water seepage	Shows signs of localized water seepage	
Other	Does not include previously excavated soil	Shows signs of surface cracking	Is granular soil below the water table, unless the soil has been dewatered Exerts substantial hydraulic pressure when a support system is used.

9.22.1 Engineering Specification

Specifications by a professional engineer are required if the excavation is more than 20 feet deep, or:

- The excavation is adjacent to structures or improvements,
- Vibration or water pressure are present,
- Shoring other than that specified in Occupational Health and Safety Regulation 20.81 are used in the excavation,
- The ground slopes away from the edge of the excavation at an angle steeper than three horizontal units to one vertical unit.
- The trench wall slope is greater than $\frac{3}{4}$ horizontal to one vertical.

The specifications of the professional engineer must be in the form of written instructions and certified by a professional engineer or professional geoscientist. They must be

available at the site, and specify the support and sloping requirements and the sub-surface conditions expected to be encountered. **Workers Compensation Board Specifications**

Before excavating or drilling with powered tools and equipment, the locations of all underground utility services shall be accurately determined, and any danger to workers from the services must be controlled. Excavation or drilling work in proximity to an underground service shall be undertaken in conformity with the requirements of the owner of the service and with the requirements of the applicable regulations of the provincial or federal authority having jurisdiction.

Pointed tools must not be used to probe for underground gas and electrical services.

Powered equipment used for excavating must be operated so as to avoid damage to underground utility services or danger to workers.

Trees, utility poles, rocks and similar objects adjacent to an area to be excavated shall be removed or secured if they could endanger workers.

Before a worker enters any excavation over four feet in depth or, while in the excavation, approaches closer to the side or bank than a distance equal to the depth of the excavation, the supervisor shall ensure that the excavation sides are sloped or supported as specified by a professional engineer or that the sides of the excavation are:

- Sloped at angles, dependent on soil conditions, that will ensure stable faces, **but in no case shall the slope or combination of vertical cut and slope exceed that shown in Figure 9.2.**
- Benched as shown in Figure 9.5.
- Supported in accordance with the minimum requirements of 20.85 of the Occupational Health and Safety Regulation of British Columbia, or
- Supported by manufactured or prefabricated trench boxes or shoring cages, or other effective means.

9.22.3 Entry, Exit, and Guarding

Safe means of entry and exit shall be provided for an excavation a worker enters. If workers are required to enter a trench over four feet deep, the safe point of entry and exit shall be located within 25 feet of the workers and the excavation shall be safely supported or sloped to the entry and exit location. Walkways shall be secured to prevent dislodgment. If an excavation is a hazard to workers, it shall be effectively guarded or covered.

If mobile equipment accesses the excavation, the open side shall have a curb and the walkway across an excavation shall be at least 20 inches wide, and if crossing an excavation over four feet deep, be equipped with guardrails.

9.22.4 Excavated Materials, Scaling, and Water Accumulation

Excavated material (spoil piles) shall be kept back a minimum distance of one meter from the edge of a trench excavation or any other excavation. The sides of an excavation shall be scaled and trimmed or otherwise stabilized to prevent slides of material or falls of rock that could endanger workers.

Water shall not be allowed to accumulate in an excavation if it might affect the stability of the excavation or might endanger workers. Erosion of slopes by surface water shall be prevented if workers may be endangered.

9.22.5 Pits and Quarries

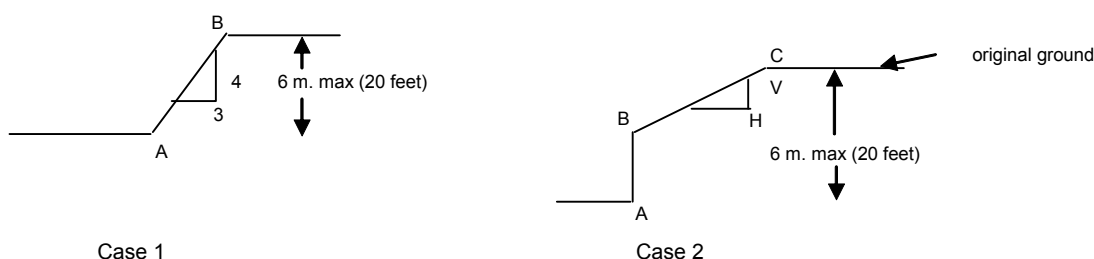
In pits, quarries and similar excavations the height of unstable faces shall not exceed the maximum safe reach of the equipment being used. Whenever possible the machine shall be positioned so that the operator is on the side away from the bank.

Figure 9.2



Figure 9.3

Bulk excavation



Case 1 Trench or bulk excavation: maximum slope of excavated face, shown as line AB, in hard solid soil is 3 horizontal to 4 vertical.

Case 2 Trench or bulk excavation: maximum height of vertical portion, shown as line AB, is 1.2 metres (4 feet).

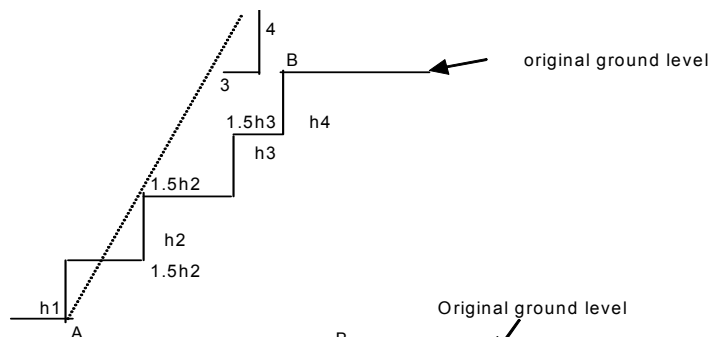
For Case 2 (trench or bulk excavation), the maximum permissible slope of the excavated face BC for the corresponding height of the lower vertical cut AB is as follows:

Table 19.4

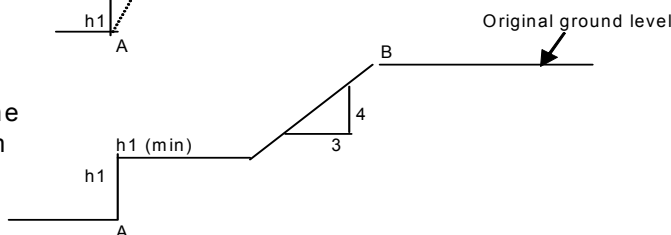
Height of line AB		Maximum slope of line BC
centimetres	feet	(in hard and solid soil)
up to 30	up to 1	1 horizontal (H) to 1 vertical (V)
30 to 60	1 to 2	3H to 2V
60 to 90	2 to 3	2H to 1V
90 to 120	3 to 4	3H to V

Figure 9.5

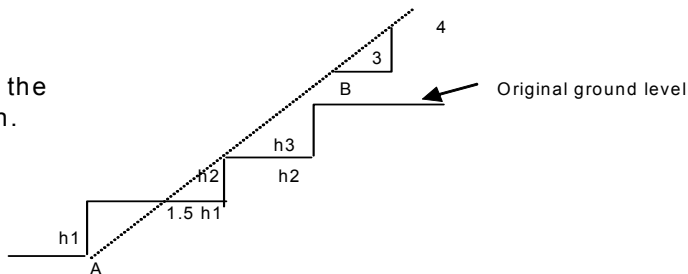
Case 1:
Workers may be on any bench or at the bottom of the excavation.



Case 2:
Workers may be on the bench or at the bottom of the excavation.



Case 3:
Workers may only be at the bottom of the excavation.



For each case:

Point A is the bottom or deepest part of the excavation.

Point B is the original or unexcavated ground level.

Maximum difference in elevation between A and B (max. depth of excavation) is 6 metres (20 feet).

Maximum height of any bench (h_1 , h_2 , h_3 , h_4) is 1.2 metres (4 feet).

In all cases, if maximum depth of excavation is greater than 6 metres (20 feet), instructions from a Professional Engineer must be followed.

Figure 9.6

Figure 19.6 Combined supporting and sloping

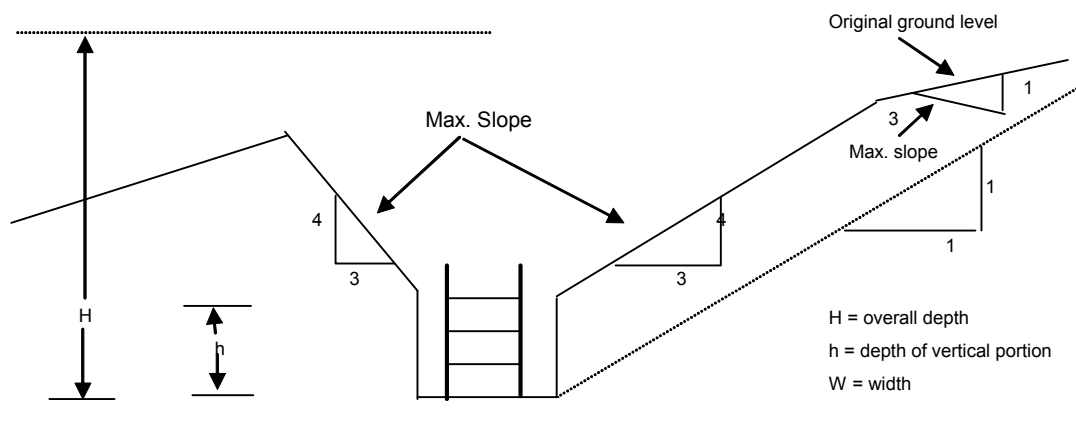


Figure 9.7

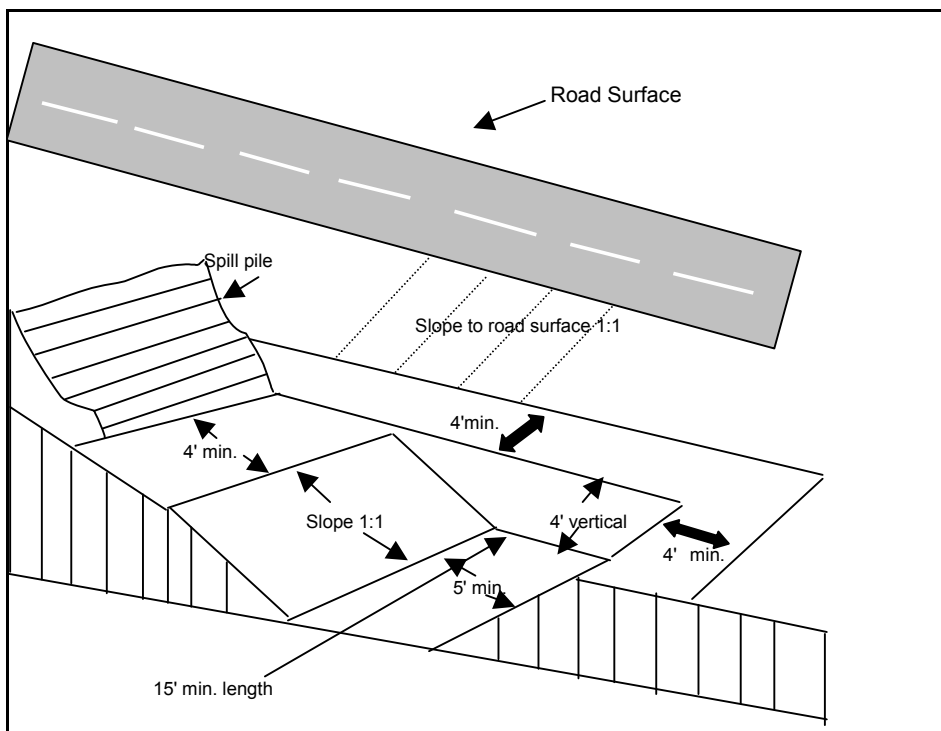
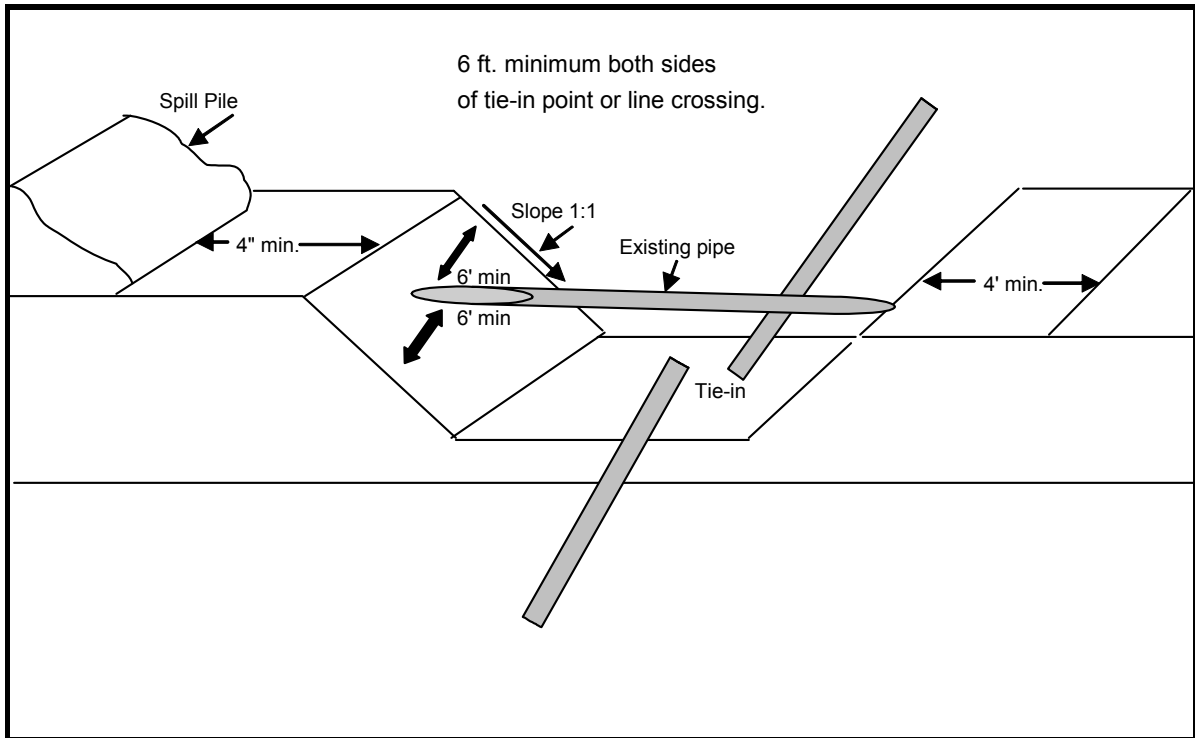


Figure 9.8

Figure 19.8 Tie-in or line crossing bell hole



9.23 SHORING REQUIREMENTS

Shoring requirements are set out in the B.C. Occupational Health and Safety Regulations, Sections 20.81 to 20.95, and include timber shoring and grades, safe shoring procedures, manufactured shoring specifications, trench support structures, spoil piles, entry and exit, guarding, crossings, use of skips or buckets, scaling, trimming and water accumulation. Occupational health and safety regulations shall be followed in all shoring applications when trench support structures, other than manufactured shoring or structures designed by a professional engineer, are used as set out in Table 9.9, Trench Support Structures.

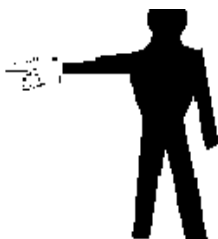
Table 9.9 Trench support structures

Size and spacing of members ¹ (imperial figures)								
UPRIGHTS			WALERS		CROSS BRACES			
Trench depth (feet)	Minimum dimensions (inches) ²	Maximum vertical spacing (feet)	Minimum dimensions (inches) ²	Maximum vertical spacing (feet)	Width of trench (feet) up to 6 6 - 12			
					Minimum dimensions (inches) ²		Maximum spacing (feet)	
							Vertical	Horizontal
Type A: Hard & solid soil								
4-10 ³	2 x 10	6	4 x 6 ⁴	4	4 x 4	6 x 6	4	6
10-15	2 x 10	4	6 x 6	4	4 x 6	6 x 8	4	6
15-20	2 x 10	close tight	6 x 6	4	6 x 8	8 x 8	4	6
Type B: Soil likely to crack or crumble								
4-10 ³	2 x 10	4	4 x 6	4	4 x 6	6 x 6	4	6
10-15	2 x 10	3	6 x 8	4	6 x 6	6 x 8	4	6
15-20	2 x 10	close tight	6 x 8	4	6 x 8	8 x 8	4	6
Type C: Soft, sandy, filled or loose soil								
4-10 ³	2 x 10	close tight	6 x 8	4	6 x 6	6 x 8	4	6
10-15	2 x 10	close tight	8 x 8	4	6 x 8	8 x 8	4	6
15-20	3 x 10	close tight	8 x 10	4	6 x 8	8 x 10	4	6

- 1 The dimensions shown are minimum and must be increased if necessary to meet job conditions.
- 2 The dimensions of members in inches are the nominal values for surfaced dry materials.
- 3 Trenches less than 1.2 m (4 ft.) deep must be shored when hazardous ground movement may be expected, as in ground subject to hydrostatic pressure or vibration.
- 4 Walers may be omitted in trenches not exceeding 2.4 m (8 ft.) in depth provided that it has been confirmed that the soil is sufficiently hard and solid to safely permit waler deletion, and provided that the trench is not in proximity to previously excavated ground.

9.24 STANDARD HOISTING SIGNALS

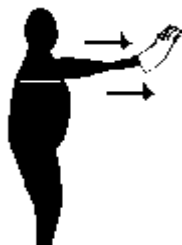
If hand signals are used between a signaller and the operator of a crane or hoist to control hoisting operations, the signals shown on the following pages shall be used:



SWING: Arm extended, point with finger in direction of the swing of the boom



STOP: Both arms outstretched at the sides horizontally, with fingers outstretched



TRAVEL: Arm extended forward hand open and slightly raised, pushing motion



DOG EVERYTHING: Clasp hands in front of body



TRAVEL: (both tracks) Use both fists in front of body, making a circular motion about each other, indicating direction of travel



TRAVEL: (one track) Lock the track on side, indicated by raised fist and travel other track in direction of other fist



EXTEND BOOM: (telescoping booms) Both fists in front of body with thumbs pointing outward



RETRACT BOOM: (telescoping booms) Both fists in front of body with thumbs pointing toward each other

Standard Hoisting Signals Continued



HOIST: With forearm vertical, forefinger pointing up, move hand in small horizontal circles



LOWER: With arm extended downward, forefinger pointing down, move hand in circles



USE MAIN HOIST: Tap fist on head, then use regular signals



USE WHIPLINE: (auxiliary hoist) Use regular signals, then tap elbow with one hand



RAISE BOOM: Arm extended, fingers closed, thumb pointing upward



LOWER BOOM: Arm extended, downward, fingers closed, thumb pointing down



MOVE SLOWLY: Use one hand to give any motion signal and place hand giving the motion signal in front of other motionless hand



RAISE BOOM AND LOWER LOAD: Arm extended, fingers closed thumb up. Other arm bent with forefinger down and making horizontal circles.



LOWER BOOM AND RAISE LOAD: Arm extended, fingers closed, thumb down. Other arm bent with forefinger pointing up and making horizontal circles

9.25 STORAGE, SELECTION & SAFE WORK PROCEDURE FOR HOISTING CHAINS & SLINGS

These procedures apply to all Surerus main shops, and welding/truck shops.

9.25.1 Storing

Areas are designated in all shops and clearly marked as: **THIS AREA IS DESIGNATED FOR STORAGE OF RATED LIFTING CHAINS AND SLINGS ONLY.**

9.25.2 Selecting

Determine the correct chain or sling for the required lift. Check to ensure load rating exceeds weight of lift. Inspect the chain or sling for wear and defects.

9.25.3 Hoisting

- Determine that the load rating of the lifting device exceeds the weight of the load to be lifted.
- Select the correct chain or sling as above. Check the load rating.
- Lifting chains are designed for a straight lift. If attachment is not possible for a direct lift, then use a flat fiber sling, wrapped under the load.
- Open hooks fitted to lift chains or slings shall be fitted with safety latches. Do not lift with the tip of the hook.
- It is every worker's responsibility to inspect all chains and slings prior to use. If defects or excessive wear are found, tag the device **OUT OF SERVICE** and notify the supervisor.
- Do not weld temporary brackets on to material for lifting purposes. Design and procedures for attaching permanent lift brackets would require certification by a professional engineer.

9.26 TEMPORARY CROSSING OPERATIONS

- Barricades, flashers, flares, warning signs, etc. shall be erected on each side of the road or railroad before excavation commences.
- On heavily traveled highways, adequate warning signs shall be placed at 165, 330 and 495 feet (50, 100, 150 metres) from the centre line of the pipeline ditch on the approach side. In addition, five or six red danger flags shall be placed at 80-feet (25-metre) intervals. Fluorescent paint shall be used on warning signs for illumination at night.
- On municipal and secondary roads, one warning sign shall be placed 165 feet (50 metres) from the centre line of the pipeline ditch on the approach side with a lesser number of red flags is adequate. Barricades, flashers, flares, etc. shall be used on all roads.
- Vehicles shall not be parked on the approach to the pipeline side of the road where the warning devices have been erected.
- Suitably identified flag persons shall be stationed on each side of the ditch line at adequate distance to allow motorists time to come to a complete stop when equipment is being moved across highways.
- No cleated equipment shall be driven across hard surfaced highways without protecting the surface of the highway. Crossing material shall be placed at least 3.25 feet (1 metre) off the highway when not in use.
- Warning signs and devices shall not be removed until the road and highway crossings are properly leveled, shoulders repaired and ditches cleared.
- Equipment shall not cross railroads until the flag person, preferably furnished by the railroad, has indicated that it is safe to do so.
- An inspection of the rails shall be made immediately to see that the rails have not been damaged.

9.1 TIE-INS AND CUT-OUTS

- When a tie-in or cut-out must be made, bell holes shall be of adequate size and properly sloped to enable the welders to work without danger of cave-ins. If the sides of any bell hole are more than 4 feet (1.2 metres) in depth and cannot be sloped to the angle of repose, then adequate shoring shall be provided. Adequate means of access and egress, such as a ladder or steps shall be provided. (See section "Sloping or Shoring of Excavations" for excavation details.)
- Any flammable liquid shall be removed and the bell hole flashed before welding commences. In the case of a natural gas pipeline, no welding shall commence nor the bell hole flashed until it has been determined by the use of an approved combustible gas indicator that an explosive mixture does not exist in the pipeline.
- Lines known or suspected of having transmitted sour gas product shall be adequately tested and purged for the protection of those workers making tie-ins or cut-outs. In addition, self-contained breathing apparatus shall be immediately available for rescuers should a worker(s) be overcome by hazardous gases. Workers in confined spaces or low-lying areas shall have personal H₂S monitors to adequately warn of hazardous atmospheres in the work area.

9.27 TRANSPORTATION OF MATERIALS AND EQUIPMENT

- Each vehicle shall be inspected daily by the driver. Any defect shall be reported immediately to the driver's supervisor or the person in charge of equipment maintenance.
- Vehicles shall not be operated on or off highway in excess of maximum capacity allowed by the applicable governmental regulations or permits.
- No person shall be allowed on the bed of a truck during winching operations.
- All loads must be adequately secured to prevent movement while being transported.
- Loose equipment or material shall not be carried in the driver or passenger compartment of vehicles.
- Controlled products, flammable products or hazardous materials shall not be carried in the driver or passenger compartments of vehicles.
- Transportation of all regulated materials, such as WHIMIS-controlled products or hazardous waste, must be hauled in accordance with the appropriate legislated requirements.
- Tidy tanks must be secured by metal bands.

9.28 TRANSPORTATION OF WORKERS

- Suitable provision shall be made for seating workers when they are being transported by vehicle or boat.
- Workers are prohibited from boarding or leaving any moving vehicle or boat, except in case of an emergency.
- Workers shall not ride on running boards, fenders or the outside of trucks or trailers, on reaches or on skid sloops.
- No stops shall be made on a trestle or bridge for unloading or picking up workers.
- Crew vehicles shall be pulled off to the side of the road when workers are boarding or disembarking.
- When the body of the vehicle is enclosed, the exhaust outlet shall be so located that the exhaust gases cannot enter the enclosed body of the vehicle.
- When workers are being transported by vehicle, loose equipment or material shall not be carried in the passenger compartment.
- Flammable material shall not be transported within the crew compartment of a vehicle used to transport workers.
- The number of passengers carried in the cab shall not exceed that allowed by applicable government regulations.
- Drivers shall be in possession of a valid driver's license of appropriate class where such is required by provincial statutes, and if required to drive an air brake equipped vehicle, is in possession of either:

SECTION 17: a valid air brake certificate or an air brake endorsement on the driver's license, or

SECTION 18: evidence of successful completion of a course of instruction on air brake systems issued by an organization acceptable to WorkSafe BC.

9.29 WELDING OPERATIONS

Before a welding or allied process is commenced, the area surrounding the operation is inspected and all combustible, flammable or explosive material, dust, gas or vapour is removed, or alternate methods of rendering the area safe are implemented.

Before using gas welding or burning equipment, the operator must ensure that the equipment is free from defects, leaks, oil and grease.

Compressed gas cylinders shall not be hoisted by slings or magnets, dropped or subjected to impact, shall normally be kept upright, and shall be secured against falling during storage, transportation or use. Cylinders shall not be handled by means of regulators or used as rollers or work supports. Valves shall be closed when not in use. Full and empty cylinders shall be kept separate and identified.

Surerus welders will comply with the requirements of CSA Standard W117.2-01 W117.2-94, "Safety in Welding, Cutting and Allied Processes."

Surerus welders will ensure that welding or allied process equipment is erected, installed, assembled, started, operated, used, handled, stored, stopped, inspected, serviced, tested, cleaned, adjusted, carried, maintained, repaired and dismantled in accordance with the manufacturer's specifications.

Welders must ensure that a regulator and its flexible connecting hose are tested immediately after connections to a gas cylinder to ensure that there is no leak of the gas supply. The welder must ensure that if a leak of the gas supply develops during gas welding or an allied process, the supply of gas is immediately shut off and the work is not resumed until the leak is repaired.

Acetylene cylinders should never be stored or transported in a horizontal position. Acetylene cylinders that have been stored or transported in a horizontal position shall be placed in a vertical position for at least one hour before use. Oxygen and acetylene equipment shall be equipped with flashback arresters.

A tank, cylinder, bottle or other vessel containing a substance under pressure as well as any associated pressure, flow regulator and piping or conveyance system, must be protected from sparks, flames, excessive heat, physical damage, electrical contact or corrosion, and equipped with suitable pressure relief mechanisms installed so that no worker will be endangered in the event of discharge.

Extreme caution shall be taken to prevent fires in dry areas. ABC type fire extinguishers must be immediately available at the work area.

Oxygen or acetylene cylinders shall not be used as a prop while cutting nor shall an arc be struck on any cylinder.

Regulators must be removed from cylinders when transporting.

Welders shall check their equipment at frequent and regular intervals for defects, particularly for defective cable in wet areas. Ground fault interrupt circuits shall be installed on welding equipment with 110 v outlets.

A compressed gas container that requires pressure testing must bear a valid and current indication that it has been pressure tested.

A compressed gas cylinder must be marked to indicate its rated pressure and the type of gas it contains.

All workers exposed to hazards from welding or burning operations shall use protective helmets, goggles, or other devices.

A coating on metal that could emit harmful contaminants (such as lead, chromium, organic materials, or toxic combustion products) must be removed from the base metal, whenever practicable, before welding or cutting begins.

A container that may have held a combustible substance must be thoroughly cleaned before any welding or burning operation is carried out on the container. Burning, welding or other hot work must not be done on any vessel, tank, pipe or structure, or in any place where the presence of a flammable or explosive substance is likely until tests have been made by a qualified person to ensure the work may be safely performed, and suitable safe work procedures have been adopted, including additional tests made at intervals that will ensure the continuing safety of workers.

Oxygen gas must not be used in any circumstance where it can contact a substance that oxidizes readily, such as a petroleum product, natural fiber or metal powder. Oxygen gas must not be used to operate a pneumatic tool, start an internal combustion engine, clean equipment or clothing, create pressure in a container, or ventilate a workplace.

Welders and welder's helpers shall ensure that adequate shielding is employed to protect other workers from exposure to the welding arc in shops or field areas. Any workers below a welding operation must be protected from sparks or welding flash and hot metal parts.

A worker involved in welding or burning operations must wear:

- flame resistant work clothing
- gauntlet gloves of leather or other suitable material and arm protection,
- an apron of leather or other suitable material for heavy work,
- eye and face protection against harmful radiation, particles of molten metal, and while chipping and grinding welds, and
- substantial safety footwear made of leather or other suitable material.

Welders using an electric welding machine must not leave the machine unattended without removing the electrode.

Recently welded or flame cut work must be marked "HOT" or effectively guarded to prevent contact by a worker, if a worker not directly involved in the hot work is likely to enter the work area.

Welding machines must have appropriate welding and ground leads free from defects to ensure proper connection. The leads must be adequate for the work.

Buffing, grinding and cleaning machine operators shall wear face shields and/or other equivalent eye protection. Grinders shall be fitted with guards.

Respiratory protective equipment will be provided and worn if an effective means of natural, mechanical or local exhaust ventilation is not practicable during short duration welding, burning or similar operations, and during emergency work.

When performing “hot taps” a written plan must be developed to ensure that all safety considerations have been made. This will be performed as a Field Level Hazard Assessment.

Prior to undertaking any welding operation in a bell hole: the pipe must be adequately blocked to prevent movement; the ditch must be properly shored or sloped with adequate work space; there must be adequate ventilation; and, there must be an adequate means of entry and exit, e.g., a ladder.

9.30 WINTER WORK

The use of gasoline as an ignition agent for open fires is prohibited.

The vehicle and equipment brakes shall be checked and tested prior to commencing work to ensure they are free from ice and frost.

Some types of extruded and plastic coated pipe become extremely slippery in cold temperatures. Utmost care shall be exercised when handling either by hand or with pipe tongs and calipers. Workers shall stay clear of pipe ends and shall not walk on pipe.

A safe distance shall be maintained when following any loaded pipe truck to avoid the possibility of an accident should the load slip or shift.

Vehicles shall travel with headlights on at all times.

Where practicable, warning signs shall be posted on winter access roads where curves, hills or speed limits may reduce road hazards.

Extra caution is required for winter work when walking or when stepping on snow covered or icy ground. Workers shall not jump down from vehicles or equipment or jump into trenches.

Equipment operators shall access and exit facing the equipment using three point contact and shall maintain an adequate handhold at all times while on the exterior of the machine.

When winter conditions demand the use of heavy or bulky clothing, extra care shall be taken when near operating equipment. Proper ear protection is advised in freezing temperatures.

If ice bridges are used, they shall be of adequate design. Daily inspections and records of ice thickness will be required if the water is deep enough to be a hazard. Weight and speed signs are to be posted.

9.30.1 Ice

The following table is the result of extensive investigation into the load carrying capacities of clear, sound ice.

Caution: This is not always applicable and is expressed in averages only. This should be used only as a guide as local conditions will affect the quality of the ice. Fifteen kilometre per hour maximum applies.

Maximum Load	Ice Thickness	
	(inches)	(centimeters)
One person on foot	2	5
Light truck - 2 1/2 ton gross	8	20
Medium truck - 3 ton gross	10	25
Heavy truck - 7 to 8 ton gross	12	30
NOTE: THIS TABLE DOES NOT APPLY TO PARKED LOADS		

9.30.2 Cold-Related Injuries

Extreme cold, just like extreme heat, has the potential to cause injury and damage to tissue. Body cells can function only within a narrow temperature range. If the core temperature falls below a critical point, severe organ dysfunction begins.

With all cold-related injuries it is important to get the injured worker to medical aid without delay. Do not attempt to warm the injured part rapidly, and do not rub or apply cold to the injured part. Treat the part very gently and wrap in a clean dressing and warm slowly while getting to first aid or other medical facility.

Anybody suffering from a cold related injury should be taken to a warm place without delay.

Frostbite

Frostbite is defined as a cold injury with damage to the soft tissues, most commonly involving the lower extremities.

Hypothermia

Hypothermia is defined as a reduction of core body temperature.

9.31 JOB PROCEDURES

9.31.1 What are they?

Sometimes referred to as “proper job procedure” or “methods,” a job procedure is a step-by-step description of how to do a job or task from start to finish.

9.31.2 Who uses them?

Written job procedures are used to train new workers or assist workers who have changed to a new position.

Workers who perform complex jobs or jobs that are performed only on occasion will also use job procedures as a reference.

9.31.3 When and by whom are they generated?

Experienced workers, highlighting safe work practices and safety points, will generate a good job procedure.

Within this industry there are safe work practices developed specific for the types of work that are done. Often, due to the conditions around this work, these practices and procedures are written in the field.

Supervisors are encouraged to have their crew members involved in the preparation of these procedures.

Company-wide safe work procedures are to be signed off by the HSE Manager.

9.31.4 Where are they?

Due to the amount and the ongoing revising of these job procedures, this manual only contains a list of the procedures used.

A job procedure binder will be present at the Surerus head office and at all job sites for the use of all workers.

9.32 STANDARDS

9.32.1 Atmospheric Monitoring

Where necessary, air monitoring will be used to evaluate employee exposure levels and determine the need for corrective action, such as engineering controls or protective equipment. The mandate of a monitoring program will be to obtain data that characterizes the employee's exposure. Monitoring will further be used to evaluate the effectiveness of corrective measures taken to reduce exposures, and document that exposures are maintained at acceptable levels on an ongoing basis.

Each site handling chemicals shall have an exposure assessment program. Where assessments indicate a significant potential for airborne exposures, an air-monitoring program shall be established.

9.32.1.1 Indoor Air Quality

Sections 4.71 to 4.80 of the B.C. Occupational Health and Safety Regulations will apply to indoor or enclosed areas when occupied by workers, except when:

- in a controlled atmosphere enclosure
- in a confined space
- clearly impracticable, such as during some construction or renovation projects.

9.32.1.2 Environmental Tobacco Smoke

Sections 4.81 to 4.83 of the B.C. Occupational Health and Safety Regulations will apply to control the exposure of workers to environmental tobacco smoke by prohibiting smoking in the workplace or restricting smoking to designated smoking areas, or by some other equally effective means.

9.32.2 Cold and Heat Stress

9.32.2.1 Cold Stress

Cold stress considerations become relevant to the workplace where a worker is, or may be, exposed to conditions that would cause the body core temperature to fall below 36 degrees Celsius (96.8 degrees Fahrenheit) or would cause cold-related injury to the exposed skin.

If a worker is or may be exposed to conditions, which could cause hypothermia or cold-related injury, a cold stress assessment must be conducted to determine areas and tasks where workers may be at risk. A cold stress exposure plan would then be developed and implemented.

A heated shelter shall be made available to exposed workers under the foregoing conditions and the worker shall be instructed to enter the shelter at the onset of symptoms of impending hypothermia. A heated vehicle may be used as the heated shelter.

If a worker is or may be exposed, Surerus management or on-site supervision must implement effective engineering controls to reduce the exposure hazard to levels above

those classified as "little danger" in the ACGIH Standard's cold stress section, which outlines criteria for wind chill on exposed flesh. If engineering controls are not practicable, the supervisor must reduce the exposure hazard by providing effective administrative controls or personal protective equipment if the equipment provides protection equally effective as administrative controls.

A worker who is at risk of developing hypothermia or cold-related injury shall wear adequate clothing and if the clothing becomes wet and its insulating value is impaired, the worker shall be provided with the opportunity to change into dry clothing in a heated shelter. If a worker becomes immersed in water, the worker shall be immediately provided with dry clothing and if necessary treated for hypothermia.

If work takes place outdoors in snow or ice covered terrain and there is excessive ultraviolet light, glare or blowing ice crystals that present a risk of injury to the eyes, workers must wear eye protection. Protective gloves, footwear, head covering and/or facemasks appropriate to the hazard shall be worn if there is a danger of frostbite to the extremities.

If workers are required to work with bare hands, provision shall be made for workers to warm their hands and if it can be reasonably anticipated that a worker may be exposed as a result of an unplanned event the worker shall be provided with clothing and equipment sufficient to permit survival from exposure.

If a cold exposed worker exhibits signs or reports symptoms of impending hypothermia the worker shall be removed from further exposure and assessed by a Level 2 or Level 3 first aid attendant, if available, or a physician.

Workers at risk of developing hypothermia or cold-related injury shall be adequately educated and trained in:

- recognition of the signs and symptoms of cold injury or impending hypothermia
- proper re-warming procedures and appropriate first aid treatment
- proper use of clothing
- proper eating and drinking practices, and
- safe work practices appropriate to the work that is to be performed

9.32.2.2 Temperature Charts

See Table 7-4 for Equivalent Chill Temperature Chart and subsequent chart, "Guide to Working in the Cold."

Table 7-4: Equivalent chill temperature													
Estimated	Actual temperature reading (degrees Celsius)												
wind speed	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
(in km/h)	Equivalent chill temperature (degrees celsius)												
0 (calm)	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
8	9	-3	-2	-7	-12	-18	-23	-28	-33	-38	-44	-49	-54
16	4	-2	-7	-14	-20	-27	-33	-38	-45	-50	-57	-63	-69
24	3	-5	-11	-18	-25	-32	-38	-45	-52	-58	-65	-72	-78
32	0	-7	-14	-21	-28	-35	-42	-50	-56	-64	-71	-78	-84
40	-1	-8	-16	-24	-31	-38	-46	-53	-60	-67	-76	-82	-90
48	-2	-10	-17	-25	-33	-40	-48	-55	-63	-70	-78	-86	-94
56	-3	-11	-18	-26	-34	-42	-50	-58	-65	-73	-81	-89	-96
64	-3	-11	-19	-27	-35	-43	-51	-59	-66	-74	-82	-90	-98
(Wind speeds greater than 64 km/h have little additional effect.)	LOW HAZARD Risk of exposed, dry skin being effected in less than one hour. Awareness of hazard low.			INCREASING HAZARD Danger from freezing of exposed flesh within one minute.				HIGH HAZARD Flesh may freeze within 30 seconds.					

The table above was originally developed by the U.S. Army Research Institute of Environmental Medicine, Natick, MA, and is adapted from the 1996 threshold limit values for chemical substances, physical agents and biological exposure indices, published by the ACGIH. The ACGIH publication provides the equivalent table in degrees Fahrenheit and wind speed in mph.

 Equivalent chill temperature requiring dry clothing to maintain core body temperature above 36 degrees Celsius or 98.6 degrees Fahrenheit.

The table below shows the cooling power of wind on exposed flesh, expressed as equivalent temperature under calm conditions.

A GUIDE TO WORKING IN THE COLD											
The ACGIH recommends the following TLV work/warm-up schedule for four-hour shifts.											
Air Temp. - Sunny Sky		No Noticable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
Degrees Celsius (approx.)	Degrees Fahrenheit (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	(Norm Breaks) 1		(Norm Breaks) 1		75 min.	2	55 min.	3	40 min.	4
-20 to -31	-20 to -24	(Norm Breaks) 1		75 min.	2	55 min.	3	40 min.	4	30 min.	5
-32 to -34	-25 to -29	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-35 to -37	-30 to -34	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-38 to -39	-35 to -39	40 min.	4	30 min.	5	Non-emergency work should cease					
-40 to -42	-40 to -44	30 min.	5	Non-emergency work should cease							
-43 & below	-45 & below	Non-emergency work should cease									

Notes:

- Schedule applies to moderate to heavy work activity, with warm-up periods of 10 minutes in a warm location and an extended break (e.g., lunch) in a warm location at the end of the four-hour period. For light to moderate work, apply the schedule one step lower. For example, at -35 degrees Celsius with no noticeable wind, a worker at a job with little physical movement should have a maximum work period of 40 minutes with four breaks in a four-hour period.
- If accurate wind velocity information is unavailable, the following can be used as a guide:

SECTION 19: 5 mph (8 km/h) light flag moves

SECTION 20: 10 mph (16 km/h) light flag fully extends

SECTION 21: 15 mph (24 km/h) newspaper sheet raises

SECTION 22: 20 mph (32 km/h) snow blows and drifts

- Threshold limit values apply only for workers in dry clothing.

Source: 1996-96 Threshold Limit Values for Chemical Substances and Physical Agents, and Biological Exposure Indices, ACGIH, 1995.

9.32.2.3 Heat Stress

Heat stress considerations become relevant to the workplace where a worker is, or may be, exposed to conditions that could cause heat-related disorders, including exposure to a thermal environment that could result in a worker's core body temperature to exceed 38 degrees Celsius (100 degrees Fahrenheit).

For outdoor work in areas in B.C., heat stress is normally only of concern during periods of hot weather and in activities such as firefighting, unless factors such as high humidity, heavy work load, or excessive radiant heat combine to increase the risk in a work activity.

If a worker is or may be heat exposed the Surerus HSE Manager or site safety coordinator will conduct a heat stress assessment to determine the potential for hazardous exposure of workers, using measures and methods that are acceptable to the Board, and develop and implement a heat stress exposure control plan.

A worker must not be exposed to levels that exceed those listed in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard. Clothing corrections must be applied in accordance with the heat stress and strain section of the ACGIH Standard.

If a worker may be exposed Surerus management or site supervision will implement engineering controls to reduce the exposure of workers to levels below those listed in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard. If engineering controls are not practicable, Surerus will reduce the exposure of workers to levels below those listed in the screening criteria for heat stress exposure in the ACGIH Standard by providing: administrative controls, including an adequate work-rest cycle; or personal protective equipment, if the equipment provides protection equally effective as administrative controls.

An adequate supply of cool potable water close to the work area shall be provided for the use of a heat-exposed worker.

If a worker exhibits signs or reports symptoms of a heat-related disorder, the worker must be removed from the hot environment and assessed by a level two or level three first aid attendant, if available, or by a physician.

Workers at risk of heat-related disorders, and their supervisors shall be adequately educated and trained in:

- recognition of signs and symptoms of heat-related disorders, and
- the responsibility to leave a hot environment if signs or symptoms of a heat-related disorder occur.

Clothing may be removed during warm weather; however, appropriate protective clothing must be worn if the worker is exposed to the possibility of injury from the material being handled or contact with an abrasive surface or object, or contact with a surface at a temperature that could cause a burn injury. Workers may have to change or add clothing as their job duties or work conditions change.

9.32.3 Confined Space Entry

Entry into confined spaces presents personnel with special hazards associated with potentially oxygen-deficient atmospheres, the presence of toxic or flammable vapours and the restricted access or exit in the event of an emergency. Work in confined spaces must be done safely by ensuring all B.C. Occupational Health and Safety Regulations are followed as a minimum, which includes a hazard assessment and written confined space entry procedures prepared by a qualified person who has adequate training and experience in the recognition, evaluation and control of confined space hazards.

In all cases, refer to Part 9 of the B.C. *Occupational Health and Safety Regulations* and the company HSE Manager before any confined space entry tasks are performed.

For more information

Confined space entry is regulated by Part 9 of the B.C. *Occupational Health and Safety Regulations*, sections 9.2 to 9.51, as well as Part 5 of the Alberta safety code.

9.32.3.1 Definition of Confined Space

Confined space means an area, other than an underground working area, that is enclosed or partially enclosed and is not designed or intended for continuous human occupancy, has limited or restricted means of entry or exit that may complicate the provision of first aid, evacuation, rescue or other emergency response service, and is large enough and so configured that a worker could enter to perform assigned work.

9.32.3.2 Confined Space Entry Procedure

General

Surerus confined space entry procedure is comprised of five steps. Prior to entry into any confined space (see definition above) the procedures will be completed in their entirety and reviewed with all personnel involved prior to beginning any work in the confined space.

All records for confined space entry will be kept for a period of not less than one year. If an incident occurs while entering the confined space the records must be kept for a period of not less than two years.

All personal protective equipment and rescue equipment must be inspected prior to any confined space entry. Assessment of all hazards must be done before any entry can be made. Once issued, the information on an entry permit may only be altered by (a) the responsible supervisor who signed the permit to update it, (b) the standby worker to update the list of workers inside the confined space, or (c) the tester to record test results.

Responsibility

It shall be the responsibility of the project superintendent to ensure that the procedures are completed by the crew foreman, project HSE Manager, or other qualified employee. The completed document will then become the Confined Space Entry Procedure for the scope of work identified.

In all confined spaces, supervisors will, at a minimum, ensure:

- That the space or vessel be sufficiently ventilated to maintain the oxygen content of 18 kilopascals 21% (partial pressure) and to prevent build-up of harmful substances.
- That piping containing harmful substances under pressure can be isolated by blanking or blinding, or if it is double valved by having two with adequate bleed-off capability.
- If valves are used to isolate piping, the bleed off valve is LOCKED in the OPEN position and valves in the flow lines are LOCKED in the CLOSED position.
- That atmosphere tests are taken so as to ensure there is no build-up of hazardous gases.

When the atmosphere in a confined space or area contains or is likely to accumulate harmful substances or a possibility of a deficiency of oxygen, the supervisor shall ensure:

- The worker(s) in the confined space is (are) attended by and is in visual range or communication with a worker at or near the entry to a confined space or vessel.
- The rescue of a possible injured worker will not be hampered by the size of the access or egress or blockage of said areas.
- The tests or measurements that will be required to determine the presence of harmful substances or oxygen deficiencies are done before entry is allowed.
- The availability of and proper use of personal protective equipment.
- Identification of other possible hazards that may arise to endanger the workers.
- This practice will be used as the confined entry permit system and records will be kept by the HSE Manager or site safety coordinator for a period of not less than one year.

Competency/Training

Supervisors and employees entering into or working with crews entering confined spaces must be trained in the proper methods of entry into the confined space.

Employees entering into or working with crews entering confined spaces must be trained in the proper methods of emergency response to a confined space emergency.

The training must be documented and performed by a competent individual. Training records are to be kept on file by the HSE Manager or project superintendent.

The safety watch must have no other function than to monitor the workers in the confined space.

9.32.3.3 Code of Practice Checklist/Permit

A Code of Practice is intended to make sure that all reasonable precautions are taken to ensure the health and safety of personnel entering a confined space. Confined spaces will be clearly marked by confined space identification

Confined Space Hazard Assessment Checklist

Have the following hazards of the confined space been evaluated and controlled, and have workers been advised prior to entry?

Atmospheric Testing			
Oxygen deficiency/excess	Y	N	N/A
Explosive dusts, flammable liquids or gases	Y	N	N/A
Toxic vapours, fumes, particulates	Y	N	N/A
Associated Hazards			
Corrosive, hazardous chemicals	Y	N	N/A
Electrical hazards including static	Y	N	N/A
Moving machinery	Y	N	N/A
Thermal hazards, hot/cold (scalding, burning, heat stress)	Y	N	N/A
Access and egress hazards (barriers, trays, cramped quarters)	Y	N	N/A
Falling hazards (ladders, scaffolds)	Y	N	N/A
Radiation hazards	Y	N	N/A
Reactive chemical hazard (products of rusting)	Y	N	N/A
Off gases from trapped products from heating, scaling, etc.	Y	N	N/A
Drowning or burial	Y	N	N/A
Noise	Y	N	N/A
Traffic	Y	N	N/A
Slippery surfaces	Y	N	N/A
Falling objects	Y	N	N/A

Task Competencies

The qualifications and training for workers who may be required to enter or work in a confined space are as follows:

Atmospheric Testing			
Is each worker entering the confined space competent, adequately qualified, trained, and experienced, or directly supervised by a competent worker?	Y	N	N/A
Are workers specifically trained in the following:			
The use of testing equipment	Y	N	N/A
Standby and emergency response	Y	N	N/A
Safe work permit usage	Y	N	N/A
Respiratory protective equipment	Y	N	N/A
First aid and CPR	Y	N	N/A
WHMIS-hazards, labels and material safety data sheets for controlled products when used	Y	N	N/A
Are records and dates of this training kept?	Y	N	N/A

Hazard Controls

The means, if any, of isolating the confined space:

Measures have been taken to prevent hazardous materials from entering the confined space by:			
Blanking or blinding	Y	N	N/A
Double valving, having two valves with adequate, operable bleed-off capability	Y	N	N/A
Piping disconnected or capped	Y	N	N/A
Electrical lock out system to ensure moving parts inoperative	Y	N	N/A
Area around confined space roped off or signs posted	Y	N	N/A
Do workers have their own individual locks to use in electrical lock-out procedures?	Y	N	N/A
Are blanks or blinds all identified to show where they have been installed?	Y	N	N/A

If double valve isolation is used, are flow valves locked in the closed position and bleed valve(s) locked in the open position?	Y	N	N/A
--	---	---	-----

Ventilation

Ventilation is required to remove harmful gas, vapours, fumes excessive heat or other airborne contaminants, and to maintain an oxygen content of 18 kpa partial pressure (21%). Types of ventilation used include natural, exhaust, inlet, or continuous.

Has ventilation been used to eliminate or reduce toxic or flammable products below the Lower Explosive Limit (LEL) or Occupational Exposure Limit (OEL)?	Y	N	N/A
Is the whole space vented to remove contaminants from pockets or corners?	Y	N	N/A
If an air blower is used, is it positioned to prevent the recirculation of contaminated air?	Y	N	N/A
If the space has been purged with an inert gas, has it subsequently been ventilated with air?	Y	N	N/A

Atmospheric Testing

The tests or measurements that will be taken to determine the presence of harmful substances or oxygen deficiencies.

If the space has to be entered in order to test, the tester must be protected by appropriate respiratory protective equipment.

Are tests made to identify (document the readings in the spaces below):				
	Readings			
Excess or insufficient oxygen		Y	N	N/A
Explosive atmosphere (% LEL)		Y	N	N/A
Toxic or hazardous vapours or gases, CO, H ₂ S, benzene, etc.		Y	N	N/A
Are testing records kept?		Y	N	N/A

Where the atmosphere cannot be guaranteed, continuous testing may be required.

Personal Protective Equipment (PPE)

Workers may be exposed to a variety of hazards while working in a confined space and the employer must ensure the availability of all the appropriate equipment for the worker

to perform an activity safely. The employer must first try to remove or reduce the hazard by utilizing engineering or administrative controls.

Are workers wearing the appropriate PPE required to protect the head, eyes, ears, feet or skin?	Y	N	N/A
Is specialty equipment required?			
Harness and lifeline	Y	N	N/A
Tripod winch	Y	N	N/A
Fire resistant clothing	Y	N	N/A

Respiratory Protective Equipment (RPE)

Respiratory protective equipment (code of practice required)	Y	N	N/A
Have the workers received adequate training and understand the use and limitations of the PPE that they use?	Y	N	N/A

Rescue

The rescue procedures and a list of rescue equipment will vary depending on the location, the type of confined space, and the degree of hazard.

If the atmosphere in the confined space contains a harmful substance, oxygen deficiency, or other hazard there is a need for worker protection.

Is the worker protected by appropriate PPE?	Y	N	N/A
Is the worker attended by and in communication with another worker stationed at or near the entrance?	Y	N	N/A
Are procedures in place to enable the worker in the space to be rescued?	Y	N	N/A
Is rescue equipment, capable of effecting a rescue, available for immediate use?	Y	N	N/A
Is there a means of communication immediately available to summon help in an emergency?	Y	N	N/A
Is there a means of transporting a victim to medical help?	Y	N	N/A
Has the rescue crew practised a rescue?	Y	N	N/A

Rescue equipment could include: first aid kit, resuscitator, splints, basket stretcher, alarm (air horn, radio), tripod winch, fire extinguisher.

Planning

Identification of other hazards that may be present in the confined space, and may compromise the safety of workers.

Could a leak of toxic or flammable substance from an adjacent area enter the space?	Y	N	N/A
If "hot work" is taking place, have sewers and manholes been covered to prevent fires and explosions?	Y	N	N/A
Have personnel who have to enter a confined space or wear RPE been checked for claustrophobia?	Y	N	N/A

Other considerations

Is there a safe work permit system used when working in a confined space?	Y	N	N/A
Is there specific entry training for subcontractors?	Y	N	N/A
Is low voltage or explosion proof lighting used?	Y	N	N/A
Is there a person who makes a final check of the confined space after the work is completed to check that all workers, tools, equipment, and waste material have been removed?	Y	N	N/A

Signatures:

Worker(s) entering confined space: _____

Supervisor: _____

Safety Watch: _____

Date of Entry: _____

9.32.4 All Terrain Vehicle Operation

All terrain vehicles (ATVs) are used almost on a daily basis on pipeline projects. The safety of the operator and those around him or her is the primary concern with ATV operation.

If the manufacturer has not set limits for operation of the ATV on sloping ground, 5% is the maximum allowable slope unless a written safe work procedure appropriate for any steeper slope on which the equipment is to be used has been developed. This procedure would be site-specific.

Ensuring the ATV is ready to ride is an important part of its safe operation. The following is a step-by-step guide on checking the ATV for operational worthiness.

T Tires & wheels	Air pressure - Always have the recommended tire pressure. Be sure front tires and both rear tires are inflated to equal pressure. If the tire pressure on one side is higher than the other side, the vehicle may pull to one side. Condition - Check for cuts or gouges that could cause air leakage. - To avoid loss of control or injury, make sure axle nuts are tightened and secured by cotter pins. Check these before every ride.
C Controls and cables	Controls - Check the location of all the controls by sitting on the ATV. Make sure they work properly, and are comfortable to use. Throttle and other cables - Make sure the throttle moves smoothly and snaps closed with the handlebars in any position. An off road environment is hard on cables. Brakes - Do the controls operate smoothly and are the controls adjusted according to the owner's manual? Are they positioned for easy reach? Your brakes are a crucial part of riding and must always be in tip-top condition. Foot shifter - Is it firmly attached and positioned for safe operation? - Are the controls comfortable to use? Make adjustments as required.
L Lights and electrics	Ignition switch (if equipped) - Check the condition of the switch and make sure it works properly by switching it off and on during your warm-up period. Engine stop switch - Does it turn off the engine? Headlight, stop and taillight (if equipped) - Are they working? You could be caught out after dark.
O Oil and fuel	- Do not get stranded because you are out of oil or fuel. Know your ATV's cruising range. - Check oil level with dipstick or sight glass while the engine is off. Check your owner's manual for procedure. - Always start your ride with a full fuel tank. - Check for fuel or oil leaks. - Take off the filter cover and check the condition of the air filter element. Be sure it is oiled and clean and not torn or blocked.
C Chain and drive shaft chassis	Chain - Inspect, adjust and lubricate the chain regularly. Your chain is the vital link from the engine to the wheels. Check for chain slack or free play so that it is within specifications as described in your owner's manual. Drive shaft - If the ATV is equipped with a drive shaft rather than a drive chain, check for oil leaks. Maintain its oil supply as outlined in your owner's manual. Nuts 'n' Bolts - Riding in rough terrain will loosen parts. Look and feel for loose parts while the engine is off. Shake handlebars, footrests etc., before each ride and periodically check fasteners. - Check shock absorbers and mounting bolts.

The starting procedures for an ATV are noted in the following procedure, known as BONE-C:

B Brakes	1. Set the parking brake or, for a fully automatic transmission ATV, put into park.
O On	2. Turn the fuel valve to ON or RESERVE position, depending on how much fuel is in the machine. Turn ignition key on, if equipped.
N Neutral or Park	3. Check that the transmission is in NEUTRAL or park. To make sure it is in neutral, check the NEUTRAL indicator, if equipped. If necessary, release the parking brake, rock the machine back and forth keeping your feet on the footrests, then re-apply the parking brake. For a fully automatic transmission ATV, put into park.
E Engine	4. Check that the engine stop switch is in the RUN or START position. The engine stop switch is usually found by either the left or right hand grip
C Choke	5. If the engine is cold, put the CHOKE in the ON position. Check your owner's manual for choke location. 6. Start the engine according to the directions in your owner's manual. 7. Once the machine is warmed up, return the choke to its normal position. This is very important because if you do not, the machine will not run properly.

Training

Each worker operating an ATV must be properly trained in the safe operation of the vehicle. The training program will be based on the ATV Smart Rider Program.

The training program for an ATV operator must cover:

- The operator's pre-trip inspection
- Use of personal protective apparel
- Operating skills according to the ATV manufacturer's instructions
- Basic mechanical requirements, and
- Loading and unloading the vehicle

Personal Protective Equipment

It is imperative that each worker operating an ATV wears an approved helmet meeting the SNELL or DOT specifications

Any worker operating an ATV must wear adequate eye protection and hearing protection.

The operator of an ATV must wear clothing suitable for the environmental conditions, and when necessary to protect against the hazards presented at the worksite, suitable gloves and clothing that covers the ankles and legs and the arms to the wrists.

Loading and off-loading an ATV must always be done wearing the approved personal protective equipment.

Loading and Unloading an ATV

Loading and unloading of an ATV onto or off of a carrier vehicle must be done in a safe manner. If ramps are used when loading or unloading an ATV, they must be placed at a suitable angle, be sufficiently wide and have a surface finish that provides an adequate grip for the ATV's tires.

Ramps purchased for loading and unloading an ATV must have a sufficient weight capacity for the ATV being loaded.

Section 10: EMERGENCY PREPAREDNESS AND RESPONSE

Table of Contents

10.1	Purpose.....	239
10.2	Definition of an Emergency	240
10.3	Emergency Response Assessment	243
10.4	Emergency Response Drills.....	244
10.5	Emergency Response Training.....	245
10.6	Emergency Procedures	246
10.7	Emergency Notification.....	247
10.8	Emergency Procedures	249
10.8.1	Major Emergency Flow chart	249
10.8.2	Minor Emergency	250
10.8.3	Office Fire	251
10.8.4	Office/Shop Medical Emergency	252
10.8.5	Emergency Site Spill Response	253
10.8.6	Spill Response Procedure	253
10.8.7	Emergency Response - Dangerous or Hazardous Goods	254
10.9	Emergency Telephone Numbers and Contacts	256
10.9.1	Emergency Telephone Numbers and Contacts - British Columbia	256
10.10	Emergency Telephone Numbers and Contacts - Alberta	258

10.1 PURPOSE

This section is intended to outline the emergency preparedness process and to assist personnel in understanding their role during an emergency. Surerus has both corporate and site-specific emergency response procedures for handling emergencies that could occur on the jobsite.

This section also prepares the company to limit damage to personnel, equipment and other company facilities.

The emergency response system will be updated yearly or as needed to meet or exceed all applicable regulations.

10.2 DEFINITION OF AN EMERGENCY

An emergency is defined as any unplanned event that has or may cause death, serious injury, property damage or environmental contamination.

Supervisors, workers and contractors are expected to participate in the development of these procedures and must be completely familiar with them to ensure all emergencies are properly managed and loss of life or property are minimized.

A review of the emergency event will be conducted with all involved employees. The review will examine the critical components of the response and its effectiveness. Employees involved will be provided and opportunity to give feedback and ask questions concerning the incident.

Emergency Equipment and First Aid Requirements

First aid and other emergency services are available to all employees while at work. Each worksite will have adequate first aid coverage at all times.

Surerus supervisors must ensure that the first aid equipment and supplies are maintained in a clean, dry and serviceable condition, contained in a material that protects the contents from the environment, and that they are clearly identified as first aid equipment and supplies. All first aid stations, kits and vehicles will be clearly marked to identify them as an emergency location where first aid equipment is available. Emergency procedures will be posted in conspicuous locations so employees can readily access emergency processes.

A list of personnel with valid first aid certification will be kept and posted at all job sites. Emergency transportation is to be organized and provided before work is started. First aid incident records are to be kept for a period of not less than three years.

Types of Emergencies and Emergency Equipment

Emergency Type	Equipment
Injury/Illness	First aid kits, level 1 and level 3 first aid providers, mobile treatment centers and first aid rooms, and radio communication for first aider and driver
Fire	Dry chemical fire extinguishers, water hoses and tanks, water back packs
Spills	Spill kits

Before work can commence, however, a **hazard assessment** incorporating first aid and emergency response must be completed and the results considered when deciding on the level of first aid coverage. First aid hazard assessments will be updated yearly or

whenever a significant change affecting the assessment occurs in the employer's operations.

The following table outlines the requirement for first aid coverage at Surerus:

Occupational Health and Safety Code 2006

Schedule 2

Table 7 First aid requirements for high hazard work

[See sections 178, 181(1)]

Number of workers at work site per shift	Close work site (up to 20 minutes)	Distant work site (20 – 40 minutes)	Isolated work site (more than 40 minutes)
1	Type P First Aid Kit	Type P First Aid Kit	Type P First Aid Kit
2 – 4	1 Emergency First Aider No. 1 First Aid Kit	1 Standard First Aider No. 2 First Aid Kit 3 blankets	1 Standard First Aider No. 2 First Aid Kit 3 blankets
5 – 9	1 Emergency First Aider 1 Standard First Aider No. 2 First Aid Kit	2 Standard First Aiders No. 2 First Aid Kit 3 blankets	2 Standard First Aiders No. 2 First Aid Kit 3 blankets
10 – 19	1 Emergency First Aider 1 Standard First Aider No. 2 First Aid Kit 3 blankets	2 Standard First Aiders No. 3 First Aid Kit 3 blankets, stretcher, splints	2 Standard First Aiders No. 3 First Aid Kit 3 blankets, stretcher, splints
20 – 49	2 Emergency First Aiders 1 Standard First Aider No. 2 First Aid Kit 3 blankets	3 Standard First Aiders No. 3 First Aid Kit 3 blankets, stretcher, splints	3 Standard First Aiders No. 3 First Aid Kit 3 blankets, stretcher, splints
50 – 99	2 Emergency First Aiders 2 Standard First Aiders No. 3 First Aid Kit 3 blankets	2 Emergency First Aiders 3 Standard First Aiders No. 3 First Aid Kit 3 blankets, stretcher, splints	4 Standard First Aiders 1 Advanced First Aider No. 3 First Aid Kit 3 blankets, stretcher, splints
100 – 199	2 Emergency First Aiders 2 Standard First Aiders 1 Advanced First Aider First Aid Room	4 Standard First Aiders 1 Advanced First Aider First Aid Room	4 Standard First Aiders 1 Advanced First Aider First Aid Room
200 or more	2 Emergency First Aiders 2 Standard First Aiders 1 Nurse or 1 E.M.T.-P. Plus 1 Standard First Aider for each additional increment of 1 to 100 workers First Aid Room	4 Standard First Aiders 1 Nurse or 1 E.M.T.-P. Plus 1 Standard First Aider for each additional increment of 1 to 100 workers First Aid Room	4 Standard First Aiders 1 Advanced First Aider 1 Nurse or 1 E.M.T.-P. Plus 1 Standard First Aider for each additional increment of 1 to 100 workers First Aid Room

Note: Number of first aiders indicated is for a shift at all times.

Emergency Evacuation Procedures

Written evacuation procedures appropriate to the risk for each project or work place must be developed and implemented to:

- (a) notify workers, including the first aid attendant, of the nature and location of the emergency,
- (b) evacuate workers safely,
- (c) check and confirm the safe evacuation of all workers,
- (d) notify the fire department or other emergency responders, and
- (e) notify adjacent workplaces or residences that may be affected if the risk of exposure to a substance extends beyond the workplace. Notification of the public must conform with the requirements of other jurisdictions, including provincial and municipal agencies.

First Aid Attendant Qualification

Any worker or supervisor designated as a first aid attendant must meet the following criteria:

- (a) be at least 16 years old,
- (b) have successfully completed the first aid training course or first aid examination developed or approved by the Board,
- (c) have a first aid certificate in good standing at the required level issued by the Board or a person recognized by the Board,
- (d) meet any other requirements determined by the Board for designation as a first aid attendant, and
- (e) if transporting injured workers must hold a valid transportation endorsement.

First Aid Responsibilities

The first aid attendant must promptly provide injured workers with a level of care within the scope of the attendant's training, objectively record observed or reported signs and symptoms of injuries and exposures to contaminants, and refer for medical treatment workers with injuries considered by the first aid attendant as being serious or beyond the scope of the attendant's training.

First Aid Records

First aid records will be kept by the HSE Manager in the Fort St. John office for a period of not less than three years. This information is confidential and will be maintained in a secure manner.

10.3 EMERGENCY RESPONSE ASSESSMENT

Prior to any project starting an assessment of the emergency response needs is to be conducted by the HSE Manager or his designate. The assessment is to be documented and findings reviewed at the pre-job meeting.

The assessment must consider the following:

1. First aid requirements, the number of first aiders and their level of training.
2. Evacuation and any challenges for transporting injured workers.
3. Training level of employees for the site.
4. Equipment needed to perform an effective response.
5. Contact numbers for notification of relevant agencies.
6. Contact numbers for client notification.
7. Type of terrain the project is in and the challenges that this presents for emergency response.
8. What additional equipment might be needed in remote areas for the survival of employees exposed.

Should the assessment identify a specific need for evacuation or rescue a site-specific procedure will be developed and the project safety coordinator will be responsible for organizing and carrying out the operation. This will be part of the project emergency response procedure (ERP) and communicated to all project employees.

10.4 EMERGENCY RESPONSE DRILLS

Emergency drills must be held at least once each year to ensure exit routes and procedures are effective. A record of the drills must be kept on file.

Office Emergency Drills

A formal emergency fire/injury drill must be conducted at the Fort St. John and Fort Nelson offices each year. The drill will be organized and carried out by the HSE Manager, and all employees will be expected to attend.

This drill is to be documented and the results reviewed with all employees after the drill is over.

Project Emergency Drills

Each project is required to conduct at least one emergency drill. The drill must include as many workers as possible and have a likely scenario for that project.

The on-site safety coordinator will be responsible for organizing and conducting the drill.

The activities are to be documented and reviewed with all employees at the next day's tailgate meeting.

Smaller projects that do not warrant an on-site safety coordinator may perform a table-top exercise, providing it is documented.

The drill organizers are to solicit input from all employees, and everyone involved is encouraged to provide input.

10.5 EMERGENCY RESPONSE TRAINING

Each employee will be trained in the emergency response system developed for the environment they are required to work in.

The training is to be given during the orientation before the worker starts on site.

Each project will have a separate and specific emergency response procedure (ERP) and this must be covered in detail for each employee.

The office and shop staff must also be trained on the ERP specific to them during their orientation.

Employees are expected to be trained in level one first aid. When the job dictates that a level three provider is used then the provider must prove their training before being hired.

Training will be documented and kept on file.

Workers designated to provide rescue or evacuation services must be adequately trained. Their training program must include simulated rescue or evacuation exercises and regular retraining appropriate to the type of rescue or evacuation being provided. At least one person on the rescue team must have a valid first aid ticket.

Training records will be kept by the on-site safety coordinator.

Rescue Personal Protective Equipment

Personal protective equipment worn by rescue personnel will be appropriate to the hazards found in the work area and in anticipation of the type of emergency that may be found there.

As a minimum the rescue crew will wear safety glasses, hard hat, safety footwear and fire retardant clothing.

Rescue Equipment

Surerus does not maintain professional rescue personnel, however, when the project demands certain skills or equipment Surerus will hire an appropriately qualified individual or company to provide rescue services.

Ropes and associated equipment must be inspected visually and physically by qualified workers after each use for rescue, evacuation or training purposes.

Maintenance records kept on file will include, but are not limited to, the following: manufacturer's name, type of equipment, date put into service, date and purpose equipment used for, inspection dates and name of the inspecting person, any damage suffered, and the date and nature of any of maintenance.

Communication is vital to all rescue operations and rescue personnel must have properly functioning radios for emergency purposes. This is supplied by the project superintendent and on-site safety coordinator.

10.6 EMERGENCY PROCEDURES

The following outlines the process for managing an emergency situation providing a step-by-step process starting at the most critical.

1. **RENDER FIRST AID.** Administered only by qualified first aid personnel.
2. **CALL JOBSITE SUPERINTENDENT OR SUPERVISOR.**
3. **CALL AMBULANCE.** Give clear, accurate directions. Have someone at the worksite meet and guide the ambulance to the accident scene.
4. **CALL POLICE AND FIRE DEPARTMENT,** and call the local utilities where applicable.
5. **NOTIFY SENIOR MANAGEMENT.** Senior management will notify next of kin (never by phone), at victim's residence and with doctor present if possible.
6. **CALL NEAREST OFFICE OF WORKERS' COMPENSATION BOARD** if serious accident, fatality, structural failure or collapse, toxic or hazardous substance, or a blasting accident has occurred, at 1-800-661-2112, local 3100 (weekdays) or 250-273-7711 (weekends).
7. **SEND RESPONSIBLE MANAGEMENT REPRESENTATIVE TO HOSPITAL TO DETERMINE VICTIM'S CONDITION.**
8. **RESTRICT THE IMMEDIATE AREA OF THE ACCIDENT SCENE** to only authorized personnel. If further danger exists, clear the area.
9. **EXCEPT AS NECESSARY TO PRESERVE LIFE OR RELIEVE HUMAN SUFFERING, DO NOT DISTURB THE ACCIDENT SCENE.** It is against the law to interfere with, disturb, destroy, alter, or remove any wreckage article until permission is given by the Workers' Compensation Board.
10. **FIND OUT WHO WAS ON THE SITE AT THE TIME AND IN PARTICULAR WHO WAS IN THE VICINITY OF THE ACCIDENT.** Get names, addresses and telephone numbers.
11. **DON'T LET ANYONE LEAVE THE SITE UNTIL YOU DETERMINE AND RECORD EXACTLY WHAT THEY KNEW OF THE CONDITIONS PRIOR TO THE ACCIDENT AND WHAT LED TO THE ACTUAL INCIDENT.** Obtain signed statements from direct witnesses.
12. **WHEN ACCIDENT RELATED ITEMS ARE FOUND, INSIST ON HAVING THEM TAGGED AND IDENTIFIED BEFORE REMOVAL OR CLEAN-UP.**
13. **DOCUMENT EVERYTHING YOU LEARN ABOUT THE ACCIDENT.** Take photographs.
14. **COMPLETE ALL WORKERS' COMPENSATION BOARD FORMS.**
15. **TALK WITH FELLOW EMPLOYEES OF THE INJURED OR DECEASED WORKER AS PEOPLE ARE BOUND TO BE UPSET. TRY TO ASSIST THEM IN REGAINING THEIR COMPOSURE OR MORALE.**
16. **ONLY THE PRESIDENT, GENERAL MANAGER OR HSE MANAGER WILL RELEASE STATEMENTS TO THE PRESS.**

10.7 EMERGENCY NOTIFICATION

In the event of an emergency, key personnel within the organization will need to be notified to provide assistance to the field representatives according to the following process.

All emergencies must be reported.

Reporting Structure	Definition	Verbal Report Immediate	Written Report 24 hours
Incident Class			
Minor	- An event that results in: - Fire/explosion/spill/release or other events with casualty/property/liability loss potential under \$10,000 - Employee or contractor first aid case - A minor near miss	- Site Safety Coordinator , Shop Foreman - HSE Manager - Operations Manger	- Operations Manager/ - HSE Manager
Serious	- An event that results in: - Fire/explosion/spill/release or other events with casualty/property/liability loss potential of \$10,000 - \$100,000 - Employee or contractor medical aid or restricted work case - A serious near miss	- Site safety Coordinator , HSE Manager - Operations Manager	HSE Manager/ Operations Manager
Major	- An event that results in: - Fire/explosion/spill/release or other events with casualty/property/liability loss potential of greater than \$100,000 - Employee or contractor lost time injury and/or hospitalization of a worker - Major uncontrolled fire/explosion/spill/release that represents imminent and serious or substantial danger to employees, public health, or the environment - Fatality - Significant media coverage - A major near miss	- Site safety Coordinator / Project Superintendent - HSE Manager - Operations Manager - President	- Operations Manager - HSE Manger - President

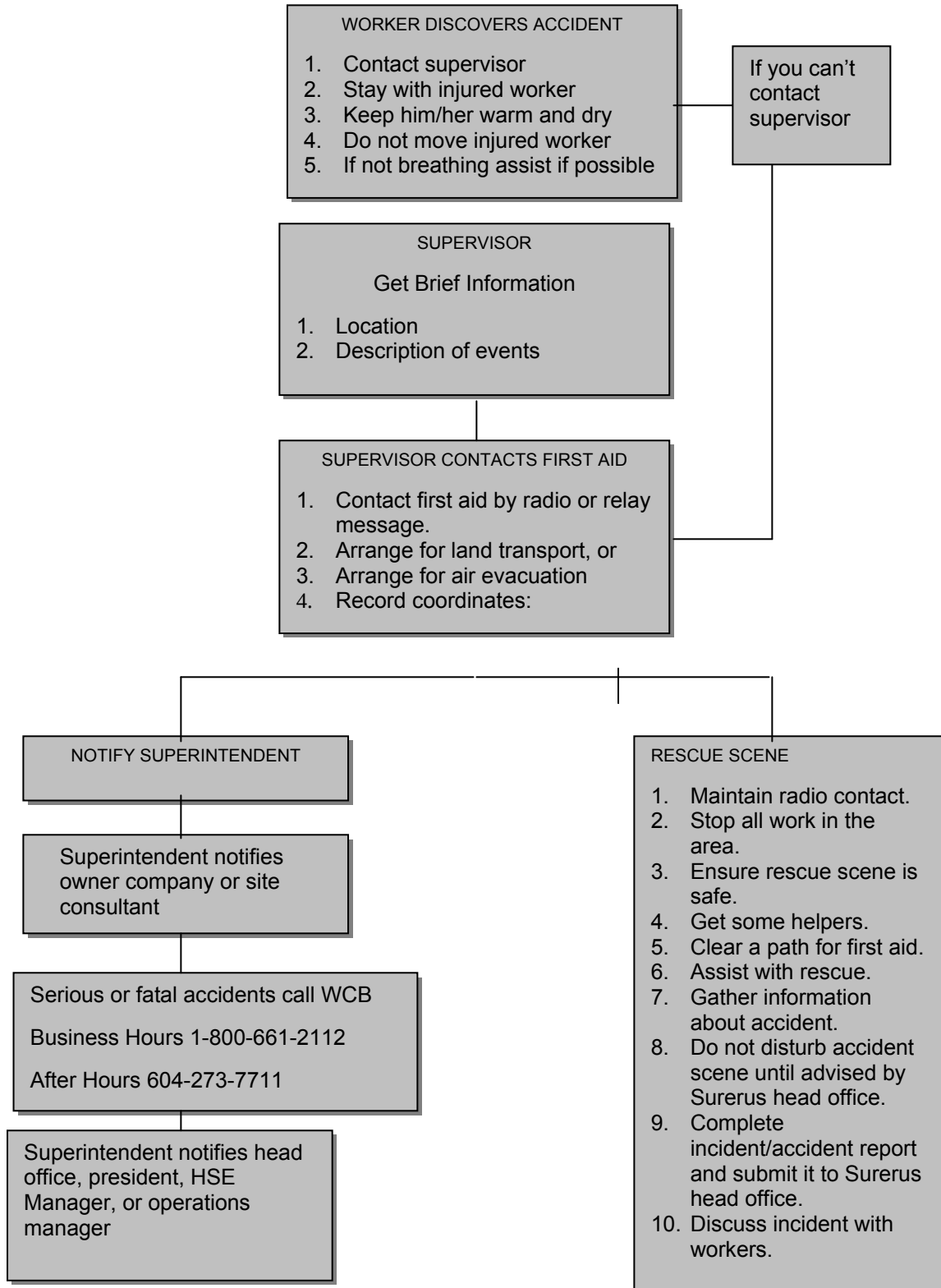
	•		
--	---	--	--

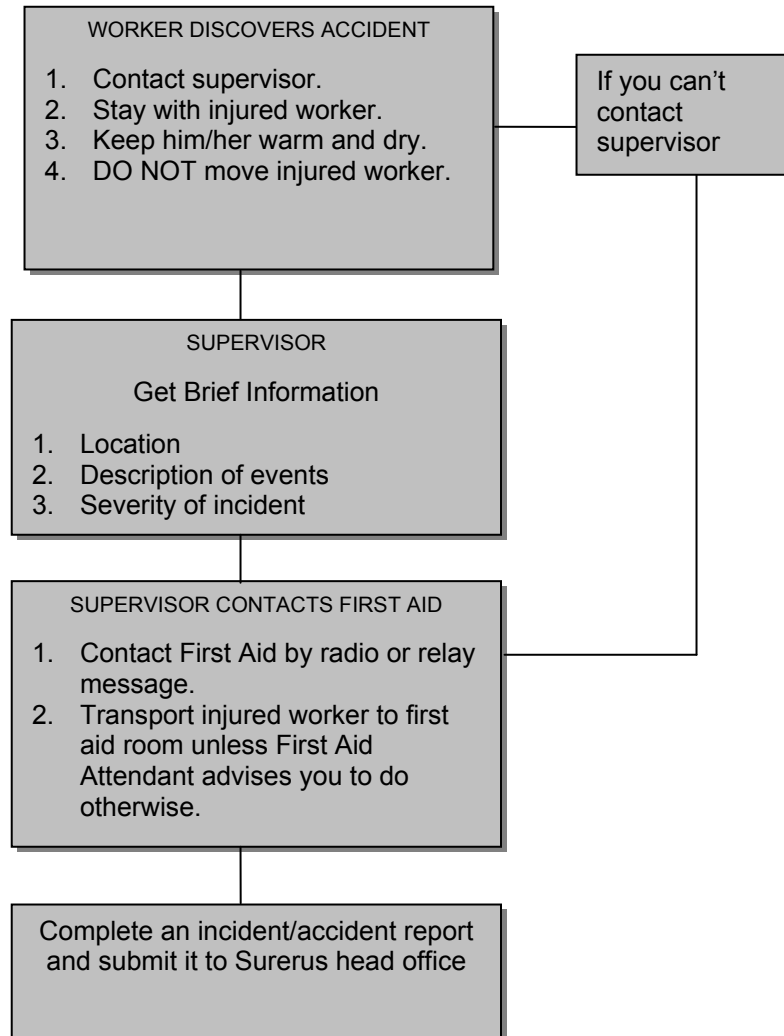
The following corporate positions must be notified of a field, shop and office emergency:

Brian Surerus	President	Office	250-785-2423
		Cell	250-263-1453
Steve Thorlakson	General Manager	Office	250-785-2423
		Cell	250-787-5898
John Steward	HSE Manager	Office	250-785-2423
		Cell	250-262-5561
Carmen Lafrance	Operations Manager	Office	250-785-2423
		Cell	250-263-2250

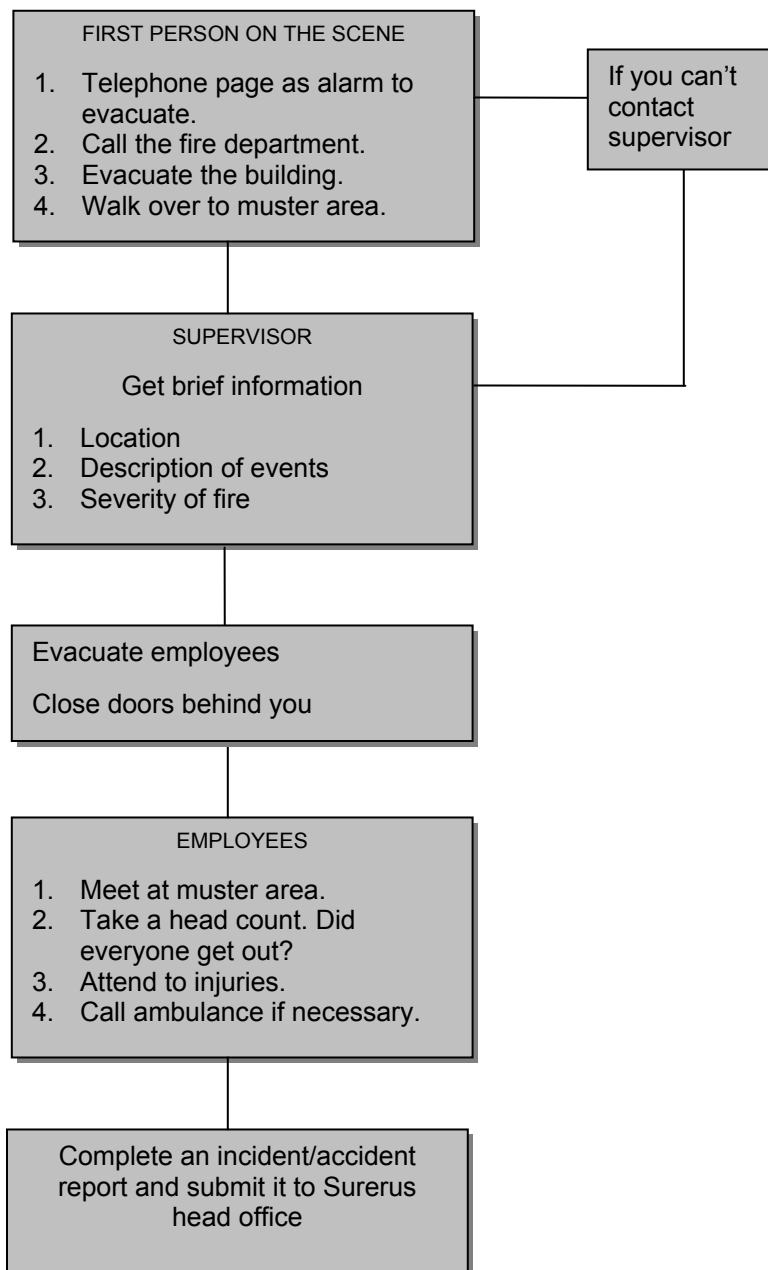
10.8 EMERGENCY PROCEDURES

10.8.1 Major Emergency Flow chart

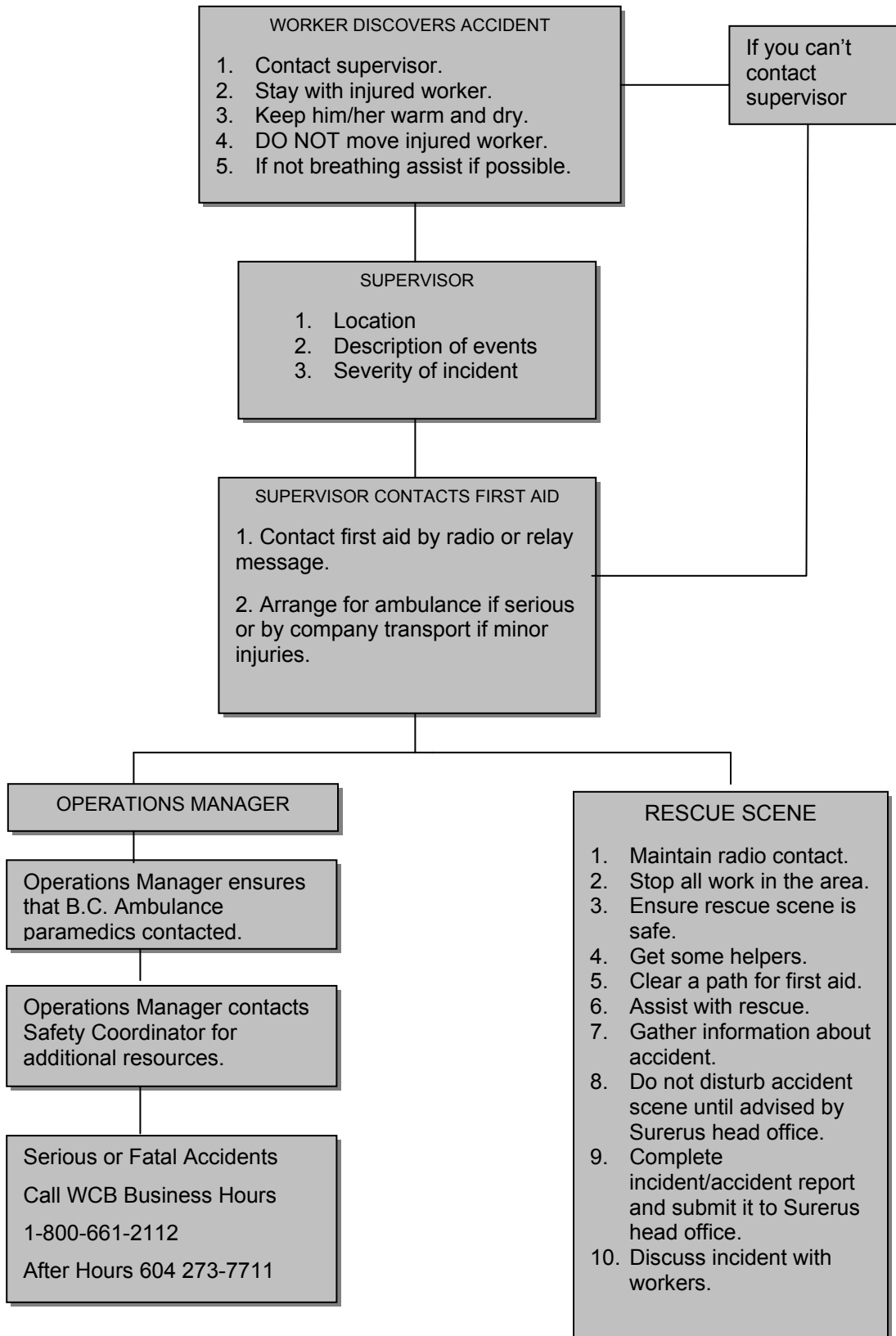


10.8.2 Minor Emergency

10.8.3 Office Fire



10.8.4 Office/Shop Medical Emergency



10.8.5 Emergency Site Spill Response

Precautions:

Due to the nature and isolation of the geographical area of pipeline projects, extreme care must be taken to avoid a spill.

Fuelling: Take care to avoid spills. No fuelling shall take place within 100 metres of a waterway.

Service: Equipment servicing must be done correctly to ensure no spills occur. No servicing of vehicles shall take place within 100 metres of a waterway.

10.8.6 Spill Response Procedure

Remedial Action

1) Minor Spill Procedure	Every supervisor, mechanic truck, fuel truck and service truck will carry 10 pounds of absorbing pads to soak up small spills on the ground.
2) Major Spill Procedure	A major spill is one in which a major release of fluid takes place, such as from split seams or holes in a fuel tank or hydraulic tank, and/or any spill that must be reported pursuant to the Transportation of Dangerous Goods legislation. BEFORE ACTING MAKE SURE YOU KNOW WHAT YOU ARE DEALING WITH AND THAT ALL SAFETY PRECAUTIONS ARE TAKEN. If a major spill transpires, immediate action must be taken to ensure the leaking fluid is contained in as small an area as possible. Dikes or trenches may be required to isolate the spill and impair its seepage. Action must be swift to stop the flow of fluid to water sources.
3) Spill in Waterways	If a spill occurs in a water source, isolate the contaminated section of water upstream and downstream. Employ pumps to keep the water flowing downstream from the contaminated area.
4) Clean-up	In the area where the spill has occurred, the contaminated soil or water must be removed to a designated disposal site to incur minimum consequences on the environment.
5) Follow-up	A detailed report must be compiled and submitted to

	the safety department upon completion of the clean up operation.
NOTE: In the event of major spills, notify head office, Operations Manager and HSE Manager without delay as they will assist in reporting the incident to the necessary authority.	

10.8.7 Emergency Response - Dangerous or Hazardous Goods

Secure the area

Establish a hazard zone that will keep non-emergency response personnel well out of danger. It may be necessary to patrol the zone to keep spectators at a safe distance.

Approach with care

Do not rush blindly ahead as this could add your name to the list of casualties. Approach from upwind to keep from coming in contact with vapours. Keep in mind that many vapours and gases are odourless, colourless and heavier than air and hence may accumulate in low-lying areas.

Identify products

Placards and/or labelling symbols will provide information as to the type of hazard involved. The exact identity of the products involved can be found by examining the shipping documents. Other markings, such as the rail car number or vehicle licence plate number, may be used to trace the shipment and determine the contents.

Assess the situation

The following points need to be considered:

Is there a fire?

Is there a spill or leak?

What are the weather conditions?

What is the terrain like?

What is at risk: people, property, and/or the environment?

What should be done:

- Is an evacuation necessary?
- Is diking necessary?
- What resources (personnel and equipment) are required and which are readily available?
- What can be done right away?

Respond

The first duty is to consider the safety of those people in the immediate area, including your own safety.

Respond in an appropriate manner: Establish a command post and lines of communication.

Rescue casualties where possible and evacuate if necessary. Maintain control of the site. Continually reassess the situation and modify the response accordingly.

Remember to contact Surerus head office:

Carmen Lafrance, Operations Manager	(250) 785-2423 or (250) 263-2250
John Steward, HSE Manager	(250) 785-2423 or (250) 262-5561

DANGEROUS SPILLS: CALL 1-800-663-3456 OR CANUTEC 613-996-6666

If workers are required to control a release of a hazardous substance to perform clean-up of a spill, or to carry out testing before re-entry, the supervisor must provide:

- (a) adequate written safe work procedures,
- (b) appropriate personal protective equipment that is readily available to workers and is adequately maintained, and
- (c) material or equipment necessary for the control and disposal of the hazardous substance.

10.9 EMERGENCY TELEPHONE NUMBERS AND CONTACTS

10.9.1 Emergency Telephone Numbers and Contacts - British Columbia

Location	Emergency	Police	Ambulance	Fire
Fort St. John	911 or 787-8100	785-2079	785-2323	785-6611
Dawson Creek	911 or 782-5211	782-2211	782-5000	782-8501
Chetwynd	911 or 788-9221	1-800-461-9911	788-2345	788-2236
Fort Nelson	911 or 774-2777	774-2777	774-6916	774-2222
Hudson's Hope	911 or 783-5241	911	7835700	783-9991
Tumbler Ridge	911 or 242-5252	1-800-461-9911	242-5555	242-5271
Pouce Coupe	911 or 782-5211	782-2211	786-5300	782-8501
Prince George	911	911	911	565-2000
Dease Lake	771-4111	911	911	771-3171

B.C. AIR AMBULANCE

1-800-561-8011

HELICOPTER	Highland	Canadian	Bailey
Fort St. John	787-7912	787-0431	785-2518
Dawson Creek	- - -	782-4204	782-8648
Chetwynd	788-9340	782-4204	785-2518
Fort Nelson	774-6106	774-6171	785-2518

FIXED WIND	North Cariboo	Villers	Aircraft Distress
Fort St. John	787-0311		1-800-742-1313
Fort Nelson	Same	774-2072	1-800-742-1313
Liard/Fort Nelson	Same	Same	1-800-742-1313

POISON CONTROL CENTRE 1-800-567-8911

DANGEROUS GOODS SPILL 1-800-663-3456

WORKERS' COMPENSATION BOARD

Fort St. John 250-785-1283

Prince George 1-800-663-6623

Richmond 1-800-661-2112

Serious or fatal injuries

Weekdays 1-800-661-2112

or

Weekends 250-273-7711

FOREST FIRE REPORTS 1-800-663-5555

10.10 EMERGENCY TELEPHONE NUMBERS AND CONTACTS - ALBERTA

Location	Emergency	Ambulance	Hospital	Fire	Police
Beaverlodge	911	354-2134	354-2136	354 -2555	354-2485
Fairview	911	494-1835	494-1835	347-3835	835-2211
Fort Vermillion	911	927-3761	927-3761	927-3737	927-3255
Grande Prairie	911	538-9511	532-7100	538-2100	532-5701
Grimshaw	911	332-1155	332-1155	332-4430	332-4666
High Level	911	926-2545	926-2545	926-3141	926-2226
High Prairie	911	523-3341	523-3341	523-3000	523-3378
McLennan	911	324-3730	324-3730	324-3811	324-3061
Manning	911	836-2551	624-3391	836-5556	624-3007
Peace River	911	624-2551	624-2551	624-2400	624-2010
Rainbow Lake	911	956-3646	956-3850	321-3731	956-3753
Red Earth					649-3990
Slave Lake		849-3614	849-3614	849-3511	849-3045
Valleyview	911	524-3916	524-3916	524-3211	524-3343
Assumption	321-3753	321-3838	321-3753	321-3971	321-3753
Spirit River	911	864-2453	864-3993	864-3511	864-3533
Sexsmith	911	532-9511	568-9511	538-3611	532-5138
Rycroft	911	864-2453	765-3993	864-3811	

ALBERTA ENERGY & UTILITIES BOARD 1-780-538-5138

ALBERTA POISON CONTROL 1-800-332-1414

DANGEROUS GOODS CONTROL 1-800-272-9600

ALBERTA WORKPLACE HEALTH & SAFETY 1-780-538-5249

FIREMASTER OIL & GAS FIRE

403-342-7500 or 780-539-4400

Grande Prairie Area

Emergency only

Work hours: 780-538-8080 Duty officer 780-538-8093 Cell 780-518-6696

Whitecourt Area

Work hours: 780-778-7165 Duty officer 780-778-7265 Cell 780-778-4689

Slave Lake Area

Work hours: 780-849-7400 Duty officer 780-849-7429 Cell 780-849-1247

Peace River Area

Work hours: 780-624-6190 Duty officer 780-624-6191 Cell 780-618-3515

ALBERTA FOREST FIRE REPORTS 780-310-3473

EMERGENCY AIR AMBULANCE SERVICES 911

DELTA HELICOPTERS LTD.

High Level 780-926-3848 or 1-800-665-3564

HIGHLAND HELICOPTERS

Grande Prairie 780-539-3112

Peace River 780-624-5555

High Level 780-926-2284

CANADIAN HELICOPTER

Grande Prairie 780-532-2047

High Level 780-926-2686

Edmonton 780-429-6900

PRECISION HELICOPTERS

Grande Prairie 780-538-1155

Section II: TRAINING

Table of Contents

II.1	Purpose.....	261
II.2	Training Requirements.....	262
II.2.1	On-the-Job Training	262
II.2.2	Formal Training Courses	262
II.2.3	Training Requirements by Regulation	264
II.2.4	Forms	265

II.1 PURPOSE

This section will outline the training needs of Surerus employees.

Training is an integral part of the Health, Safety and Environment (HSE) Program. Proper training prepares workers for specific tasks and responsibilities, and provides them with the skills and confidence needed to perform their jobs with a high level of expertise.

Training is also essential to performing a job correctly, efficiently and, above all, safely. As such, Surerus is committed to investing in training its employees and developing knowledgeable, motivated workers.

11.2 TRAINING REQUIREMENTS

11.2.1 On-the-Job Training

On-the-job training is an important part of ongoing job-skills training. It provides hands-on experience in the proper work procedures of each job and helps ensure employees are competent to do their work.

On-the-job training shall be provided to all workers new to a job or worksite and when work procedures or requirements are changed. On-the-job training shall be utilized to demonstrate new or revised safety requirements, new or remodelled equipment or new processes or methods.

Training shall be provided by supervisors and employees familiar with the jobsite and competent in the particular job for which they are providing training.

The jobs with highest priority for training are those:

- with serious hazards
- that are done frequently
- where there is a high staff turnover
- where accidents frequently occur.

On-the-job training shall include, but not be limited to, the following:

- company and regulatory requirements
- standard work procedures
- critical tasks
- equipment operation
- proper use of tools
- effective use of manuals, check-lists, and records
- use of personal protective equipment
- emergency response procedures
- first aid skills where necessary
- signs, hand signals, codes etc.

Upon initiation of on-the-job training, the trainer and/or jobsite supervisor shall start keeping records. The training records combined with records of orientation and other training will be used to determine future training needs.

11.2.2 Formal Training Courses

Training courses will improve employee safety performance by increasing knowledge, improving skills, and changing behaviour. Both the employee and his/her supervisor shall participate in determining the employee's training needs.

Training courses shall be provided for workers to improve job skills and knowledge and to teach them to work safely.

In addition to courses and training required by regulation, the company will provide training in the company's Safety Management System. This training is applicable to all levels within the company, and the system's effectiveness depends on employee participation.

Training and instruction shall be provided for managers to help them direct and monitor the company's safety program, and for supervisors to enable them to oversee technical work, anticipate safety needs, and troubleshoot safety problems at the jobsite.

Training will only be provided by recognized agencies and competent instructors and will have a competency measure component.

Various courses that may be provided to managers, supervisors, and workers are as follows:

- Basic WHMIS
- First aid Level One
- Cost of accidents
- Due diligence
- Effective crew talks
- Hazard analysis
- Investigation of accidents
- Joint occupational health and safety committee
- Lock-out
- Managing assessments and claim costs
- Musculoskeletal disorder prevention
- Occupational health and safety program overview
- Preventing activity-related soft tissue disorders (ASTD) of limbs
- Preventing back injuries
- Preventing musculoskeletal disorders
- Prevention division - field operations
- Refusal of unsafe work
- Responsibilities for occupational health and safety
- Return to work
- Safety inspections
- Shoring and excavations
- Use of occupational health and safety regulations

Training courses shall be evaluated to ensure results. All training shall be recorded for each employee, and will include the person's name, location and name of the course, final grade, date completed, and certification renewal dates if applicable.

The HSE Manager will manage the training program and continuously improve the training roster as the need arises. All training records will be filed by the HSE Manager and the information recorded electronically in the training database.

II.2.3 Training Requirements by Regulation

Table 11.1

Regulations	Training required	Workers engaged in and/or exposed to:
	ATV operator training	ATV operation
	Heat stress	Exposure to extreme heat conditions
	Cold stress	Exposure to cold weather
	Confined space	Entry into confined spaces
	Cranes and hoists	Operators of cranes and hoists
	Boom truck over 11 tons	Must have TQ after Jan. 1, 2000
	Emergency preparedness	All workers
	Emergency procedures	All workers
	Evacuation and rescue	Designated rescue workers
	Fall protection	Risk of falling exists
	Fire fighting	Workers assigned to fire fighting
	Falling and bucking	All power saw operators
	First Aid Level One	All Surerus employees
	First Aid Level Three	Medics for projects
	Hazardous substances	Exposed to hazardous substances
	Construction material hoists	Hoist operators
	Musculoskeletal injuries (MSI)	Exposure to MSI risk
	Equipment operator competency	All mobile equipment operators
	Noise	Exposed to greater than 85 dBA

	General oilfield driver improvement (GODI)	Operators of GVW 5,500-15,000 kg
	Heavy haulers course	Operators of GVW over 15,000 kg
	Radiation	Workers exposed to radiation
	Rigging	Rigging operations
	Incident investigations	Those responsible for investigations
	Rights and responsibilities	All workers
	Tire servicing	Workers assigned to work on tires
	Toxic process gasses	Workers exposed to toxic gasses
	Traffic control	Workers engaged in traffic control
	Vibration	Workers exposed to vibration
	Working alone	Working alone
	WHMIS	All Surerus employees
	Transportation of dangerous goods	Handling dangerous goods
	Drivers licences of appropriate class	Motor vehicle operators
	Air brakes	Operators of air brake vehicles
	Supervisor safety management	All supervisors
	Ground Disturbance	All employees breaking ground surface below 30 centimetres

II.2.4 Forms

The following training-related forms are listed in the forms section of this manual (Section 15):

- On-the-job training record: Training attendance record:

Section 12: VEHICLE AND ROAD SAFETY MANAGEMENT

Table of Contents

12.1	Purpose.....	267
12.2	Responsibilities.....	268
12.2.1	Driver's Licences and Driver's Files	268
12.2.2	Loss of Driver's Licence	268
12.2.3	Defensive Driver Training	269
12.2.4	Vehicle Inspection and Vehicle Files	269
12.2.5	Provincial Laws and Regulations	269
12.2.6	Seat belts	270
12.2.7	Passengers	270
12.2.8	Vehicle Accidents	270
12.3	General.....	271
12.4	Personal Safety and Traffic Hazards.....	272

12.1 PURPOSE

The intent of this section is to outline requirements for the safe operation of motor vehicles of all sizes and types.

Road hazards pose the single most significant risk of death or severe injury for workers operating or riding in a motor vehicle.

As Surerus employees drive hundreds of thousands of kilometres each year, it is important to recognize the hazards associated with driving and implement controls to prevent and avoid vehicle-related incidents.

12.2 RESPONSIBILITIES

- Company and contractor vehicles will be operated in a reasonable and safe manner.
- Unauthorized employees or contractors must not drive company vehicles.
- The driver of a company vehicle is responsible for operating the vehicle in a safe and legal manner, using the vehicle only for the intended purpose. The driver is also responsible for the safety of passengers or helpers and employees helping load or unload, or otherwise working on or around the vehicle, unless a supervisor is in charge of the relevant assignment.
- All signs governing the movement and parking of vehicles on any worksite shall be observed.
- Pedestrians have the right-of-way on all plant roads or right-of-ways and should always walk, not run, facing the traffic.
- If workers are required to travel in a Surerus transportation vehicle, the Surerus supervisor or safety coordinator will perform a hazard assessment of the road, weather and traffic conditions to and from the jobsite to ensure workers are safe while travelling. The hazard assessment is to be performed as part of the general hazard assessment for each project.

12.2.1 Driver's Licences and Driver's Files

All new employees prior to employment and all contract personnel new to Surerus' operations will be required to submit to their supervisor proof of a valid driver's licence of appropriate class, as required by law in the province in which they are currently driving. Air brake endorsement will be required if the vehicle is so equipped.

As the registered owner of commercial vehicles, Surerus will maintain, for each employed driver, a driver record file. The file will contain the driver's abstract, a photocopy of their driver's license and any infractions sent to the company as part of the WCB driver improvement initiative. The operations manager will keep all driver record files in the Fort St. John office.

While employed by Surerus, employees and contractors must maintain a valid driver's licence, acceptable in the province in which they are currently driving, with proof of submitted to Surerus at the time of renewal.

Suspension or revocation of an employee's or contractor's licence must be reported promptly to a Surerus supervisor. Failure to comply will be cause for appropriate disciplinary action, which may include termination.

12.2.2 Loss of Driver's Licence

In the event of loss of driver's licence for an employee or contractor, Surerus shall make every effort to avoid incurring additional financial liability in the conduct of its operations.

Upon notification of loss of driver's licence, the supervisor is required to review alternative solutions as follows:

- Personnel without a valid driver's license shall not be permitted to drive.

- Where two or more employees ride in the same vehicle, the driver must be an employee with the proper licensing and defensive driver training.

12.2.3 Defensive Driver Training

Defensive driver training will be encouraged and employees with such training will be given first opportunities to operate company owned or leased vehicles.

Employees who operate heavy vehicles must complete General Oilfield Driver Improvement (GODI) and Heavy Haulers training as required by occupational health and safety regulations.

12.2.4 Vehicle Inspection and Vehicle Files

Drivers of all vehicles shall inspect the condition and operation of their vehicles prior to operation, which shall include a pre-trip inspection of tires, all lights, horn, windshields, windshield wipers, rear-view mirrors, brakes, steering, turn signals, fuel, oil, coolant and all other fluid levels and back-up alarms.

The operator of a Surerus worker transportation vehicle must ensure that it has been inspected by a qualified person before first use on a work shift. Log book checklists are provided for all worker transportation vehicles.

If any defective equipment is found, it shall be reported to the supervisor as soon as reasonably possible.

Surerus' commercial vehicle operators shall inspect their units prior to operation, at the beginning of a work shift and after he or she ceases to operate it at the end of a work shift. The inspection carried out must include an inspection of the following equipment: lighting devices and reflectors, tires, coupling devices, wheels and rims, service brake and trailer brake connections, parking brake, steering mechanism, horn, windshield wipers, rear vision mirrors, and the emergency equipment.

The Surerus operations manager shall keep a duplicate of all the daily logs maintained by the driver for six months from the date that the information is recorded.

A driver conducting an inspection shall record on the inspection report any defects found, and shall report such defects to their supervisor prior to the next required inspection. No supervisor or manager shall permit, and no operator shall drive, a commercial vehicle on a highway when a major defect is present on the vehicle.

12.2.5 Provincial Laws and Regulations

Surerus requires all drivers to drive in accordance with the law. Drivers shall not operate equipment that is defective or is not in compliance with the law. Drivers are personally liable and responsible for the consequences of provincial and civic violations.

Surerus shall maintain and keep driving records readily accessible for inspection and audit purposes for the calendar year in which they were made, and the following four calendar years.

12.2.6 Seat belts

In company vehicles, seatbelts shall be worn by all drivers and passengers. Those not wearing seat belts could endanger others should they be involved in an accident.

12.2.7 Passengers

Passengers shall only be carried in vehicles that are designed for that purpose. A seat belt and a proper seat shall be provided for each passenger. Under no circumstances shall passengers be carried in the back of a pick-up truck.

A worker must not ride in a vehicle in a standing position, unless protected from being thrown off balance.

Vehicles used primarily or regularly for the transportation of employees in which the driver and passenger compartments are separate shall be provided with means by which the passengers can readily communicate with the driver.

Any enclosed portion or compartment of a vehicle in which workers are transported must have:

- effective ventilation independent of doors providing clean air
- adequate lighting
- means for heating and cooling
- an effective means of communication between the operator and passengers
- more than one means of exit

12.2.8 Vehicle Accidents

All accidents, including any damage, involving company vehicles must be immediately reported verbally to the supervisor, followed by a full report on the forms provided by the company. Details will include the number and length of skid marks, width of roads, presence of traffic signs, visibility, names and addresses of persons involved and witness statements.

In case of an accident, the driver shall:

- pull off the road, if possible, to avoid obstructing traffic
- place flares or warning reflectors on the road as necessary
- render first aid to any injured person
- refrain from entering into any argument or dispute with the driver of the other vehicle, pedestrians or bystanders
- make no admission of liability or offer any settlement of claims
- use the motor vehicle accident form in the glove compartment to help gather the essential information at the accident scene
- advise appropriate police detachment in the event of injury and/or extensive damage
- report all damages must to the supervisor immediately

12.3 GENERAL

- Employees and contractors must be properly trained prior to operating unfamiliar company motor vehicles.
- One of the most important rules of the road is courtesy; consider the rights and privileges of others.
- Materials, goods, tools or equipment carried in a portion or compartment of a vehicle in which workers are riding must be located and secured to prevent injury to the operator or workers.
- The vehicle's motor shall not be running while refueling or installing tire chains.
- Employees should perform pull-through parking (pulling through a space, so the vehicle is facing outwards in the next space) when available, or backing into a parking space if necessary. This provides the operator an easier exit from the parking area as well as a quick exit in case of an emergency.
- When parked, standard transmission vehicles should be placed in low gear or reverse; automatic transmission vehicles should be in park. In both circumstances, engage the emergency brake and, if necessary, block the wheels.
- Drivers should not leave the vehicle engine running when not in the vehicle. In those instances where it's deemed necessary, the emergency brake shall be firmly engaged.
- Before backing up a vehicle, do a walk around to check for obstructions and hazards.
- A worker must not ride in a vehicle with any part of the body outside the vehicle unless essential to the work process, and then only if the worker is adequately restrained.
- Materials hauled on or in company vehicles shall be loaded or tied down in such a way as to prevent items from jarring loose, shifting forward or falling off. Hazardous goods shall be hauled in accordance with provincial regulations.
- A vehicle shall be driven according to weather and road conditions and must be under control at all times. Vehicles shall not exceed posted speed limit. The maximum speed while driving on a gravel road with ideal conditions is 80 km/h unless otherwise posted. Driving too fast for conditions on a pipeline right-of-way will not be tolerated.
- Vehicles will not tunnel park on any roadway. Park on the same side of the road as other vehicles, park defensively on all company leases, and park the vehicle in such a manner that it does not hinder operations of other vehicles.
- All vehicles, when moving, shall have headlights on.
- When jump starting a vehicle, contact the positive terminal to the positive terminal, and the negative terminal of the good battery to a location on the vehicle frame remote from the battery on the vehicle being started.
- Nylon rope and chains are not to be used for towing; use manila or polypropylene only.
- The driver must ensure that cargo transported by a commercial vehicle is contained, immobilized or secured so that it cannot leak, spill, blow off, fall from, fall through or

otherwise be dislodged from the vehicle, or shift upon or within the vehicle to such an extent that the vehicle's stability or maneuverability is adversely affected.

- No supervisor or manager will allow a driver to drive, and no driver shall drive after he or she has accumulated 13 hours of driving time in a day or after the driver has accumulated 14 hours of on-duty time in a day.
- Failure to report any damages to company vehicles is cause for dismissal.

12.4 PERSONAL SAFETY AND TRAFFIC HAZARDS

Personal safety is the main concern for employees when stopping on a highway or working around moving vehicles and equipment. Many workers are injured or killed each year due to contact with moving vehicles and equipment.

Visibility is essential to preventing accidents with moving vehicles or equipment and, as such, Surerus employees will wear high visibility vests or stripping to ensure they are seen by passing motorists or equipment operators.

All Surerus trucks are to have the following equipment:

- one set of triangle flares
- high visibility vest
- fire extinguisher
- emergency first aid kit

In project work areas where traffic is passing close to workers, traffic control will be set up to ensure vehicles slow or stop as needed. A traffic control plan is to be developed and all personnel trained on the components of the plan.

Traffic control signs, such as speed signs, on right-of-ways and highway edges where workers are performing tasks will be set up.

The site superintendent and/or supervisors are responsible for ensuring they have the appropriate traffic control in place to ensure the workers' safety.

Section 13: RECORDS AND STATISTICS

Table of Contents

13.1 Purpose	274
13.2 Types of Records to be retained.....	275
13.3 Annual Safety Summary and Statistics.....	276
13.3.1 Number of Incidents	276
13.3.2 Incident Frequencies and Ratios	276
13.4 Project Safety Statistics.....	277
13.5 Incident Tracking System (Job Smart).....	277
13.6 Project Safety Statistics.....	278
13.6.1 Audits	278

13.1 PURPOSE

The intent of this section is to outline the requirements for safety related records retention and statistical analysis.

Maintaining a comprehensive system of safety records is an essential part of ensuring Surerus' safety program remains relevant and effective. Detailed records are also necessary to prove due diligence during an inquiry or investigation, or in a program audit scenario.

13.2 TYPES OF RECORDS TO BE RETAINED

The following is a list of the records Surerus keeps for various business and legal reasons:

1. Hazard Identification and Control Checklists and Forms
 - a. Pre-Construction Hazard Identification Report
 - b. Pre-Construction Hazard Identification Report
 - c. Pre-Construction Checklist
 - d. Pre-Construction Safety Meeting and Checklist
 - e. Pre-Phase Safety Meeting Checklists
 - f. Shop Inspection Checklist
 - g. Jobsite Inspection Checklist
2. Safety Meeting Forms
 - a. Safety Meeting Agenda
 - b. Safety Meeting Minutes
 - c. Safety Meeting Attendance Record
 - d. Daily Tailgate Meeting Form
3. Modified Work Program
 - a. Fit to Work Form
4. Respiratory Protection Forms
 - a. Respirator Assignment Record
 - b. Fit Test Record
5. Incident Management Forms
 - a. Incident Investigation Form
 - b. Vehicle Incident Record
 - c. Spill Report Form
6. Safe Work Practice Forms
 - a. Confined Space Entry Form
 - b. Confined Space Checklist
7. Training Records
 - a. On-the-Job Training Record
 - b. Training Attendance Record
8. Vehicle Forms
 - a. Pre-Trip Inspection Form
9. Yearly Incident Statistics and Summary

When completed, these forms are to be kept in the HSE Manager's files for a period of two years in addition to the current year. One exception to this rule are the incident investigation forms and first aid records, which must be kept for seven years.

13.3 ANNUAL SAFETY SUMMARY AND STATISTICS

The HSE Manager will compile the following statistical information to be presented in a yearly report to senior management. The summary will review the year's work, as well as the incident performance. The safety statistics are used to demonstrate our accident performance to potential clients, and will be sent to clients for pre-qualification purposes.

13.3.1 Number of Incidents

Total number of incidents will be calculated considering the following:

- Property damage
- Personal injury
- lost time
- medical aid
- first aid
- days away
- restricted work
- Vehicle incidents

13.3.2 Incident Frequencies and Ratios

Annual safety statistics will include incident frequencies and calculations using the following formulas:

1. Lost time (LT) frequency

- $$\frac{\text{\# of LT incidents} \times 200,000}{\text{\# exposure hours}}$$

2. Total recordable incident frequency

- $$\frac{\text{\# of total incidents (MA+LT)} \times 200,000}{\text{\# exposure hours}}$$

3. Incident Frequency

- $$\frac{\text{\# of total days away} \times 200,000}{\text{\# exposure hours}}$$

13.4 PROJECT SAFETY STATISTICS

Project safety statistics will be compiled by the on-site safety coordinator or the HSE Manager depending on the size and scope of the job. The project will keep the following safety statistics:

- Lost time injuries
- Medical aid injuries
- Restricted work injuries
- First aid injuries
- Near miss incidents
- Exposure hours
- Vehicle accidents
- Safety meetings conducted
- Behavior based cards filled out
- Field level hazard assessments conducted

13.5 INCIDENT TRACKING SYSTEM (JOB SMART)

All incidents including first aid, medical aid, property damage, near miss and lost time incidents are to be documented, and a report sent to the HSE Manager on a weekly basis. The HSE Manager is to provide a copy of the completed incident investigation report to the data base administrator for entry.

The data base is intended to provide an electronic tracking system of all incidents. This system will provide an up to date trending capability. The tracking system is web based and can be accessed by field safety personnel for data entry when necessary.

The following reports are to be entered into the data base for tracking:

- Near miss reports
- Injury incidents
- Property damage incidents
- Behavior based observation cards
- ISO non-conformance reports
- Training records

13.6 PROJECT SAFETY STATISTICS

To ensure the company's safety program remains current and effective, overall safety performance shall be regularly assessed. Assessments will identify successes as well as areas where improvements are needed.

To ensure safety performance keeps pace with company needs, an evaluation shall be performed annually.

The annual assessment and evaluation shall include:

- employee safety performance evaluations
- internal audit of safety program
- accident trends
- accident costs.

At the end of each assessment period, a progress report shall be prepared along with recommendations, which will then be communicated to employees, contractors, and sub-contractors.

13.6.1 Audits

As a part of the Petroleum Industry Training Service (PITS) Certificate of Recognition Program a safety program audit will be conducted yearly. The audit will use the PITS Basic Safety Audit protocol.

The audit process calls for a cycle of three years, with year one being conducted with an external approved auditor and the following two years as internal or maintenance audits. Surerus must obtain at least 80% to pass the audit.

The HSE Manager will conduct the internal audit and when the external audit is required, the HSE Manager will source an approved PITS auditor to conduct it.

Section 14: ENVIRONMENTAL MANAGEMENT, DANGEROUS GOODS, CHEMICAL AND BIOLOGICAL HAZARDS AND HARMFUL SUBSTANCES

Table of Contents

14.1	Purpose.....	281
14.2	Environmental Guidelines	282
14.2.1	Right of Way	282
14.2.2	Water	282
14.3	Waste Management	283
14.3.1	INTRODUCTION	283
14.3.2	RESPONSIBILITIES	283
14.4	External Release Reporting Criteria	285
14.4.1	Externally reportable release	286
14.4.2	Reportable threshold limits for new substances	287
14.4.3	Who to Notify and When	287
14.4.4	What to report to regulators	288
14.4.5	Third-party releases	288
14.4.6	Who to call for assistance	289
14.4.7	Release Report Form	289
14.5	Workplace Hazardous Materials Information System (WHMIS).....	291
14.5.1	WHMIS Overview	291
14.5.2	Routes of Entry and Control	293
14.5.3	Contact with Flammable Liquids	294
14.5.4	Employee Training	294
14.5.5	Material Safety Data Sheets (MSDS)	294
14.5.6	Receiving Products	294
14.5.7	Workplace Labels	295
14.5.8	Flammables Storage	296
14.5.9	Transportation of Dangerous Goods (TDG) Overview	298

14.1 PURPOSE

This section of the manual outlines the requirements for Surerus environmental stewardship and processes to safely manage chemicals, biological hazards and harmful substances.

Surerus believes the protection of its employees and the environment is extremely important, and must be integral to all work carried out.

14.2 ENVIRONMENTAL GUIDELINES

14.2.1 Right of Way

Clearing of the right-of-way is to be done in conformance with environmental regulations and industry accepted practices.

Top soil will be stripped and retained for remediation of the site.

Waterways will be approached considering the land contour and wildlife present in the waterways such as fish, beaver and other inhabitants.

All approvals must be obtained before work on any right-of-way may commence.

Spill kits are to be kept in all company vehicles in environmentally sensitive areas where Surerus is conducting work.

Surerus' policy is to have no spills to ground, however if a spill to ground occurs the containment and clean-up must begin immediately.

14.2.2 Water

All water crossing and disturbance permits must be in place before work around water can be commenced.

No refuelling of equipment within 100 feet of a body of water.

Waterways are not to be used to dump used water or sewage from camps; all waste must be managed according to provincial regulations.

14.3 WASTE MANAGEMENT

14.3.1 INTRODUCTION

In order to manage waste properly and effectively, a good understanding of the following is required:

- process creating the waste
- characteristics of the waste
- storage requirements
- classification of the waste for transportation purposes
- transportation and manifesting requirements
- capabilities of the waste management facilities
- tracking procedures.

This section of the manual describes the procedures required for the manifesting and tracking of wastes generated at the Surerus facilities or jobsites.

14.3.2 RESPONSIBILITIES

14.3.2.1 Generator Responsibilities

The waste generator is responsible for:

- properly characterizing and classifying their wastes
- utilizing appropriate treatment and disposal practices
- understanding the capabilities and limitations of the methods selected for the treatment and/or disposal of their wastes
- ensuring that waste carriers have a valid carrier number and drivers are certified under Transportation of Dangerous Goods (TDG) legislation
- maintaining accurate and complete waste documentation and manifests
- informing waste carriers and receivers of the properties of their oilfield wastes
- ensuring operational requirements have been satisfied and, if applicable, required approvals are in place for any on-site waste handling, treatment, and disposal method

14.3.2.2 Carrier Responsibilities

Carriers are required to register with environmental authorities in provinces of operation. Approved carriers are issued a provincial identification number indicating that they are licensed to transport regulated wastes. Carriers must be bonded, insured, and must provide TDG training for their drivers before they are permitted to transport regulated wastes.

Carriers are responsible for the following:

- checking the shipment before accepting it
- checking the documentation for accuracy
- mounting placards

- maintaining or replacing safety marks, labels and placards
- ensuring documents are in the vehicle (all required transport documentation and current TDG certificate for the driver)
- having a functional emergency response plan in place to handle emergencies while in transit

14.3.2.3 Receiver Responsibilities

The waste receiver is responsible for:

- ensuring required approvals are in place and operational requirements have been satisfied for all waste handling, treatment, and disposal methods offered;
- understanding the capabilities and limitations of their treatment and disposal methods/facilities and communicating these to waste generators;
- accepting only those wastes their facility is approved to receive;
- maintaining accurate and complete waste documentation and manifests;
- operating their facilities in compliance with licenses and approvals;
- upgrading their equipment and operating practices as necessary to comply with changes in regulatory requirements; and
- having an emergency response plan in place and reviewed with local responders.

14.3.2.4 Waste Manifesting

Federal manifests are required to be completed when shipping hazardous material generated by upstream oil and gas facilities in British Columbia. Surerus has taken the position that all oilfield waste (exclusive of domestic waste) whether hazardous or non-hazardous that is shipped from its facilities will be manifested in order to streamline and simplify the waste manifesting and tracking process.

14.4 EXTERNAL RELEASE REPORTING CRITERIA

ALL releases that exceed regulatory reporting threshold quantities as depicted in Table 1 must be reported to the applicable regulatory agencies.

Oil & Gas Commission	(250) 261-5765
Provincial Emergency Program (PEP)	(800) 663-3456
TDG (Authorities)	(250) 387-5996

Table 1 – Regulatory Threshold Reporting Criteria for Releases of Site Substances

SPIILLS

Substance	OGC Reportable Quantity	PEP Reportable Quantity	TDG Reportable Quantity	TDG Classification
Condensate	100 L	100 L	200 L during loading/unloading	3
Cronox	-	100 L	5 L during loading/unloading	3 (8, 9)
Diesel Fuel	-	100 L	200 L during loading/unloading	3
DIPA	-	200 kg	-	-
Ethylene Glycol	-	200 kg	-	-
Jeffcool	-	200 kg	-	-
LPG	-	10 kg	Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more	3
Lube Oil	-	200 kg	-	-
Methanol	-	100 L	200 L during loading/unloading	3
Produced Water	200 L	200 kg	-	-
Sanitary Sewage	-	200 kg	-	-
Sulfinol	-	200 kg	-	-
Sulfolane	-	200 kg	-	-
Varsol	-	100 L	200 L during	3

			loading/unloading	
Used (Waste Oil)	-	100 L	25 L during loading/unloading	9

UNPLANNED AIR RELEASES

Substance	OGC Reportable Quantity	PEP Reportable Quantity	TDG Reportable Quantity
Natural Gas (Sweet)	Adverse Effect	10 kg	Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more
Natural Gas (Sour)	Adverse Effect	5 kg	
Poisonous or Corrosive Gases	-	5 kg	
Other Compressed Gases	-	10 kg	
Ozone Depleting Substances	-	All Releases	-
Offsite Odour	Adverse Effect	Adverse Effect	-

UNSCHEDULED FLARING RELEASES

Unscheduled flaring, including emergency flaring, must be reconciled in monthly reports to the Oil & Gas Commission. Scheduled flaring requires a permit.

14.4.1 Externally reportable release

A release is an incident where a substance that is potentially harmful to the environment, human health or safety accidentally exits its containment, coming into contact with the environment and/or people. An accidental release becomes externally reportable to the regulatory agencies when it exceeds the reportable quantity identified in Table 1.

Externally reportable releases common to gas plants and pipelines are:

- **Spills** of both liquids and granular solids
- **Unplanned air releases** such as emergency flaring, pipeline breaks and fugitive emissions
- **Leaks**, whether liquid or gas, are also considered releases and must be reported once reportable threshold quantities have been released or when an adverse effect has occurred

14.4.2 Reportable threshold limits for new substances

The threshold reporting quantities for all substances currently used are outlined in Table 1. To determine the external reportable release quantities for new substances used at the site, Table 2 can be used.

Table 2 – TDG Threshold Quantities

TDG Class & Division of Substance	Reportable Quantity
2.1 Compressed Gas, Flammable	Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more
2.2 Compressed Gas, Non-flammable, Non-toxic	
2.3 Toxic Gas	
2.4 Corrosive Gas	
3. Flammable Liquid	≥ 200 L
4. Flammable Solid	≥ 25 kg
5.1 Oxidizer	≥ 50 kg or 50 L
5.2 Organic Peroxide	≥ 1 kg or 1 L
6.1 Toxic Substance	≥ 5 kg or 5 L
6.2 Infectious Substance	All
8. Corrosive Substance	≥ 5 kg or 5 L
9. Miscellaneous Products, Substances or Organisms	≥ 25 kg or 25 L

To use Table 2, refer to the substance's Material Safety Data Sheet. Look up the substance's TDG classification and match it to the classifications in Table 2 to determine the reporting threshold quantity. Releases of these substances will be reportable to the Ministry of Environment and the TDG hotline at or exceeding these quantities.

14.4.3 Who to Notify and When

Reportable releases must be reported to one or a combination of the following parties:

- 1) **Internal – refer to Surerus Incident Management Process**
- 2) Regulatory agencies
- 3) Affected parties - landowners, communities, etc.

A release into the environment of a substance that causes an adverse effect must be reported to applicable regulatory agencies **immediately at the first available**

opportunity and not when it is convenient and the emergency is over. Investigation and enforcement action may occur if release reporting is not performed in a timely manner.

Verbal reports to the Oil & Gas Commission must be followed by a written report within **14 days** of the verbal report. The Ministry of Environment may also request a written report following verbal reporting through the PEP number.

Landowners, rural residents and town residents may be adversely affected by a release from your facility. These affected parties should be contacted as appropriate by phone and given an explanation of the events. The information disclosed, their responses, the dates and times should all be recorded and retained for future reference.

14.4.4 What to report to regulators

Spills and unplanned air releases must be immediately reported to the Oil & Gas Commission, Ministry of Environment, and the TDG hotline as outlined in Table 1. The following information should be provided in the verbal report.

- 1) reporting person's name and telephone number
- 2) name and telephone number of person who caused release
- 3) location and time of release
- 4) description of the circumstances leading to the release
- 5) type and quantity of substance released
- 6) action taken or proposed at the release site
- 7) details of further action contemplated or required
- 8) names of other persons or agencies advised concerning the release

Do not speculate on the circumstances of the release. If you do not know, are uncertain about the circumstances, or believe the situation needs to be investigated further, state your uncertainty rather than guessing.

Releases reported to the Oil & Gas Commission must also be followed by a written report within **14 days** of the verbal report. A **reporting form** for releases is attached at the end of this document (Form 14-1).

Written reports may also be requested for releases reported to the Ministry of Environment or TDG hotline.

14.4.5 Third-party releases

As a matter of policy, Surerus facilities will endeavour to undertake the same release response measures and reporting procedures for any third-party releases occurring within the facility's boundaries.

As a contractor staff must report adverse releases to the appropriate regulatory agency if they control, cause, or permit the release. Staff must also notify the producer if a reportable release has occurred.

14.4.6 Who to call for assistance

Call the HSE Manager for assistance in reporting releases.

John Steward: (250) 785-2423 office

(250) 262-5561 cellular

If the HSE Manager is not available, you can also call Surerus Operations Manager.

Carmen LaFrance: (250) 785-2423 office

(250) 263-2250 cellular

14.4.7 Release Report Form

OIL & GAS COMMISSION

Compliance and Enforcement

#200-10003 110th Avenue

Fort St. John, B.C. V1J 6M7

Phone (250) 261-5766 Fax (250) 261-5765

RELEASE REPORT

Release Number:

Date/Time Observed:	Date/Time Reported:
Reported By:	Company:
Address:	Telephone:
Responsible Party:	
Cause of Incident:	
Location of Incident:	
Released Substance	Volume
o Gas	10 ³
o Oil	_____ m ³
Additional Information:	

oProduced Water		m		
o Other		m ³		
Spill Migrating?	☐ No	☐ Yes		
On-going?	☐ No	☐ Yes		
H ₂ S?	☐ No	☐ Yes	If Yes, Concentration?	ppm %
Residents Area?	in ☐ No	☐ Yes	If Yes, distance?	
Area: Affected:				
Cleanup underway?	☐ No	☐ Yes	☐ N/A	
Injuries or fatalities?	☐ No	☐ Yes	☐ N/A	
Other notifications?				
MELP	☐ No notify	☐ Yes	☐ N/A	☐ Will (250) 787-3411
PEP	☐ No notify	☐ Yes	☐ N/A	☐ Will 1-800-663-3456
Ministry Forests	of ☐ No notify	☐ Yes	☐ N/A	☐ Will 1-800-663-5555
Other:				
Other Information:				

	Reported Requested: ☐ No ☐ Yes
Information taken by:	

14.5 WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

14.5.1 WHMIS Overview

Legislation to implement WHMIS has been enacted both federally and provincially; in B.C. the regulatory body is WorkSafe BC.

The WHMIS legislation and this program provide protective guidelines that assist Surerus in protecting workers from the effects of chemical and biological hazards and harmful substances.

While Surerus does not use large quantities of controlled substances, employees at Surerus will encounter or work with some controlled products as part of their duties. Having knowledge of many controlled products will better protect employees from harm.

Controlled products will be found in the following areas:

Location	Type of Controlled Product Expected
Main Shop, Fort St. John	WD-40, parts cleaner, engine oil, engine coolant, spray paint, windshield washer fluid, grease, brake cleaner, waste engine oil, cutting oils, welding rods, acetylene, nitrogen, oxygen, compressed gasses, gasoline, diesel, ether
Welding Shop, Fort St. John	WD-40, parts cleaner, engine oil, engine coolant, spray paint, windshield washer fluid, grease, brake cleaner, waste engine oil, cutting oils, welding rods, acetylene, nitrogen, oxygen, compressed gasses, gasoline, diesel, ether
Storage Sheds	Gasoline, diesel, grease
Pipeline ROW/Facilities	WD-40, parts cleaner, engine oil, engine coolant, spray paint, windshield washer fluid, grease, brake cleaner, waste engine oil, cutting oils, welding rods, acetylene, nitrogen, oxygen, compressed gasses, gasoline, diesel, ether, benzene, natural gas, H ₂ S, drilling mud
Main Shop, Fort Nelson	WD-40, parts cleaner, engine oil, engine coolant, spray paint, windshield washer

	fluid, grease, brake cleaner, waste engine oil, cutting oils, welding rods, acetylene, nitrogen, oxygen, compressed gasses, gasoline, diesel, ether
Paint Shop, Fort St. John	Parts cleaner, engine oil, engine coolant, spray paint, paint thinners, grease, brake cleaner, acetylene, nitrogen, oxygen, compressed gasses, gasoline, diesel, ether, abrasive blasting media

The controlled products listed above can cause adverse health affects for workers if not properly handled. Effects of the controlled products used at Surerus are listed in the Material Safety Data Sheets located on each jobsite and in each office and shop location.

No worker may be exposed to a substance listed in Schedule 1, Table 2 of the Alberta occupational health and safety code at a concentration exceeding its ceiling at any time.

Hydrogen sulphide (H₂S) gas is the most dangerous of the toxic substances found in our workplace. The following chart outlines its health effects at varying levels of concentration.

Concentration (PPM)	Health effect
0.01 – 0.3	Odor threshold
1 - 20	Offensive odor, possible nausea, tearing of the eyes or headaches with prolonged exposure
20 - 50	Nose, throat and lung irritation; digestive upset and loss of appetite; sense of smell starts to become fatigued; acute conjunctivitis may occur (pain, tearing and light sensitivity)
100 - 200	Severe nose, throat and lung irritation; ability to smell odor completely disappears.
250 - 500	Pulmonary edema (build-up of fluid on the lungs)
500	Severe lung irritation, excitement, headache, dizziness, staggering, sudden collapse (knock-down), unconsciousness and death within a few hours, loss of memory for the period of exposure.
500 – 1,000	Respiratory paralysis, irregular heart beat, collapse and death without rescue.
>1,000	Rapid collapse and death

All employees expected to work in an environment where H₂S could be present must be trained in how to safely work in this environment. No worker should be exposed to more than 10 PPM of H₂S at any time.

Employees working in areas where the potential of H₂S exposure exists will wear gas detectors supplied by Surerus.

All Surerus employees working in potential H₂S atmospheres are expected to participate in the H₂S Alive training provided by Enform. The training will be documented and the records kept by the HSE Manager. Surerus also has its own H₂S code of practice, which is required when:

- a) a pure substance is in an amount exceeding 10 kilograms, or
- b) in a mixture in which the amount of the substance is more than 10 kilograms and at a concentration of 0.1% by weight or more at a worksite.

14.5.2 Routes of Entry and Control

Hazardous substances can enter the body through inhalation, absorption, injection or ingestion.

In case of contact with a hazardous substance, decontamination is to be done mainly by flushing or washing the affected areas with water. Eye wash stations and/or showers are set up in all work areas where workers are exposed to contact with hazardous substances that could damage the eyes or skin.

All workers in contact with hazardous substances must decontaminate according to the Material Safety Data Sheet for that specific substance.

In work scenarios where substances are airborne the Surerus code of practice for respiratory protection will provide guidance for exposure prevention.

Workers are to eat lunch in lunch rooms where provided so as not to contaminate food with any hazardous substances. In cases where workers consume food on the ROW or in their work trucks they are to ensure food is kept separate from the storage of hazardous substances.

First aid personnel are also at risk of biological hazards. The guidelines for minimizing such risks are in Surerus' Biological Hazards procedure, which is available to all employees. It is contained in the procedures manual that is kept by the supervisor on jobsites and by the shop foreman and HSE Manager.

Personal protective equipment (PPE) is provided to protect workers from hazardous substances. Some types of PPE provided are:

- Gloves — rubber, leather or thermal protective
- Rubber or vinyl aprons
- Safety goggles/glasses
- Respiratory Protective Equipment — half-face and full-face with cartridge, self-contained breathing apparatus and supplied air system

14.5.3 Contact with Flammable Liquids

If a worker's clothing/and or skin is contaminated with a flammable or combustible liquid, the worker must:

- Avoid any activity where a spark or open flame exists or may be created,
- Remove the clothing, and
- Ensure the clothing is decontaminated before it is used again.

If a worker's skin is contaminated the worker must wash the skin at the earliest possible time.

14.5.4 Employee Training

The jobsite/shop supervisor or designate is responsible for implementing the WHMIS program and for ensuring a review of the site-specific WHMIS program is conducted during the employee orientation process.

The supervisor will ensure that all employees within his/her specific area of responsibility are instructed and can demonstrate an understanding of WHMIS requirements. Recertification is required every three years for existing employees and each new employee before he or she begins employment with Surerus.

All company truck drivers will also be trained in the Transportation of Dangerous Goods (TDG). Recertification is required every three years.

14.5.5 Material Safety Data Sheets (MSDS)

Material Safety Data Sheets (MSDS) are an important part of the WHMIS program. The MSDS stations will be located at the time clock stations in both the main and welding shops. A complete set of MSDS will be provided for each project and for the first aid vehicle on every jobsite.

The HSE Manager and on-site Construction Safety Officers (CSO) are responsible for ensuring that current MSDS are available to all worksites.

Supervisors are responsible for ensuring that each site under their direct control has a complete set of MSDS for the substances found on their worksite. MSDS must be updated every three years or earlier.

Emergency procedures are outlined on all MSDS are as follows:

- Injuries — chemical burns, chemical splashes and inhalation
- Spill and leak
- Fire and explosion data

14.5.6 Receiving Products

All products intended for use by Surerus employees will be received through the supervisor or designate. No new products will be accepted without current MSDS.

All new data sheets will be forwarded to the supervisor or safety officer before being released to workers. Each product must have an appropriate supplier label attached containing the pertinent WHMIS product information

14.5.7 Workplace Labels

Workplace labels are to be used where no supplier label is available, or on portable containers into which a product has been transferred, as in the following example:

WHMIS - WORKPLACE LABELS (Cont'd)

Workplace Labels require:

- ☒ 1. **Product Identifier** (same as on the Material Safety Data Sheet)
- ☒ 2. **Information for the *SAFE* handling of the controlled product**
- ☒ 3. **Reference to Material Safety Data Sheet (MSDS)**

PACE WORKPLACE LABEL SAMPLE



The image shows a sample of a PACE Workplace Label. It is a rectangular label divided into several sections. At the top, there is a box for 'Product Identifier/Identificateur Du Produit'. Below this is a section for 'WHMIS Hazard Symbols/Symboles De Danger SIMDUT' containing eight circular hazard symbols. Underneath the hazard symbols is a section for 'Personal Protective Equipment/Équipement De Protection Personnel' containing eight circular PPE symbols. Below the PPE symbols is a box for 'Other/Autre'. At the bottom of the label, there is a black box with white text that reads: 'Refer to the Material Safety Data Sheet for additional information/Pour information Supplémentaire Referer À La Fiche Signalétique'.

The PACE concept for WHMIS Workplace Labelling was meant to provide a common labelling system for the Petrochemical Industry. The PACE Label/Tag provides information on the Product Identifier, WHMIS Hazard Symbols (associated with the hazardous product), Personal Protective Equipment Symbols (associated with the use/handling of the Hazardous Product identified) and reference to the MSDS (Material Safety Data Sheet), together with other related information to assist compliance with the WHMIS Regulations.

The PACE labelling system is easy to use:

- identify the hazardous product
- blackout the WHMIS hazard symbols not associated with the hazardous product identified
- blackout the PPE (Personal Protective Equipment) symbols not associated with the proper use/handling of the hazardous product identified.
- identify the proper Precautionary Measures associated with the use/handling of the hazardous product identified.

As well as being used widely throughout the Petrochemical Industry, the PACE Labels/Tags are being used by many other companies as a flexible, effective labelling system to identify hazardous products in the workplace.

14.5.8 Flammables Storage

Supervisors must ensure that flammable substances stored or used at a work area (that is considered not a hazardous location):

- will not be in sufficient quantity to produce an explosive atmosphere if inadvertently released,
- are not stored within 30 meters of an underground shaft,
- are not stored in the immediate vicinity of the air intake of ventilation supply system,
- are not stored near an internal combustion engine, or the fire box of a fired heater or furnace
- stored in a container that is designed, constructed and maintained in good condition to securely contain the substance
- stored only in containers approved by CSA Standard B376-M1980 (R1998), "Portable Containers for Gasoline and other Petroleum Fuels" or ULC Standard C30-1995, "Containers, Safety."

If the work requires that the contents of metallic or conductive containers be transferred from one to another, a worker must ensure that static electricity is controlled while the contents are being transferred. Grounding cables must be used while transferring flammable substances.

The amount of a hazardous substance in a work area must not exceed the quantity reasonably needed for work in progress, normally in one work shift.

Bulk or reserve quantities must be stored in a designated area separate from the work area. All shops and warehouses must have the approved flammable storage cabinet installed and in use.

A hazardous substance must be stored in a designated area, in a manner that ensures that it will not readily fall, become dislodged, suffer damage, or be exposed to conditions of extreme temperature.

The storage area for a hazardous substance must be:

- (a) designed and constructed to provide for the safe containment of the contents
- (b) clearly identified by signs, placards or similar means
- (c) designed and maintained to allow the safe movement of workers, equipment and material
- (d) provided with adequate ventilation and lighting
- (e) in a location not normally occupied by workers, and not in a location such as a lunchroom, eating area, change room, clothing storage locker or passenger compartment of a vehicle

Except for packaging used to contain flammable or combustible liquids, combustible shelves, racks and other materials are not permitted inside a flammable or combustible liquids storage room or storage cabinet unless required as part of a fire separation.

When a flammable gas or a flammable liquid is handled, used or stored, all sources of ignition must be eliminated or adequately controlled including open flame, spark-producing mechanical equipment, welding and cutting processes, smoking, static

discharge and any electrical equipment or installation that is not approved for hazardous locations, as specified by the Electrical Safety Act.

14.5.9 Transportation of Dangerous Goods (TDG) Overview

The purpose of the Transportation of Dangerous Goods legislation is to protect the public when dangerous goods are being transported by road, rail, sea or air. Dangerous goods regulations may be enforced by police, weigh scale operators or inspectors who are designated by the federal or provincial government.

Section 15: FORMS

15.1 FORMS LIST

Following are the forms used in this Health, Safety and Environment Program:

1. Safety Meeting Forms
 - a. Safety Meeting Agenda
 - b. Safety Meeting Minutes
 - c. Safety Meeting Attendance Record
 - d. Daily Tailgate Meeting Form
2. Hazard Identification and Control Checklists, Cards and Forms
 - a. Pre-Construction Hazard Assessment
 - b. Pre-Construction Safety Meeting
 - c. Pre-Phase Safety Meeting Checklists
 - d. Field Level Hazard Assessment Card
 - e. Hazard Opportunity Card
 - f. Behaviour Based Safety Observation Card
 - g. Shop Inspection Checklist
 - h. Jobsite Inspection Checklist
3. Modified Work Program
 - a. Fit To Work Form
 - b. Return to work Form
4. Respiratory Protection Forms
 - a. Respirator Assignment Record
 - b. Fit Test Record
5. Incident Management Forms
 - a. Incident Investigation Form
 - b. Vehicle Incident Record
 - c. Spill Report Form
 - d. Incident Follow-up
 - e. First Aid Record
 - f. WCB Employer's report B.C.
 - g. WCB Employer's report AB
6. Safe Work Practice Forms
 - a. Confined Space Entry Form
 - b. Confined Space Checklist
7. Training Records
 - a. On-the-Job Training Record
 - b. Training Attendance Record
8. Vehicle Forms
 - a. Pre-Trip Inspection Form D.O.T. Large Trucks
 - b. Pre-Use Pick-up Log

Section 16: GLOSSARY

Word	Definition
ABC Units	Fire extinguishers that are capable of combating A, B,C type fires.
Accident	An undesired and unplanned event that results in injury to people, damage to property, damage to the environment, or loss to process.
Audit	A review of policies, standards, procedures, and tasks to ensure that they meet the needs of the operation and are in accordance with all company and legislated standards.
Basic Cause Analysis	A process to identify basic and contributing causes that can result in an undesired event.
Contractor	A person or group of people hired to do work on behalf of Surerus or at Surerus facilities that are not placed on the company payroll system.
COR	Certificate of Recognition as assigned by Enform under the Partnerships Program and WorkSafe BC.
Emergency	An unforeseen combination of circumstances or the resulting state that calls for immediate action to prevent or resolve injury, illness or damage to facilities, equipment, or the environment.
Employees	All Surerus permanent, part-time, and temporary employees (including co-op and summer students).
Equipment	A physical component or item installed at a facility or jobsite that carries out a specific function.
Exposure	An instance where an employee or contractor is, or

Word	Definition
	was, subject to some effect, influence, or safety hazard, or was in contact with a hazardous chemical or physical agent at a sufficient concentration, duration, and intensity to produce an injury/illness.
First Aid	Any one-time treatment and subsequent observations of minor scratches, cuts, burns, splinters, etc. that do not ordinarily require medical care.
G.O.D.I.	The General Oilfield Development Improvement training course designed and distributed by the Petroleum Industry Training Service.
GVW	Gross vehicle weight as set by the manufacturer.
Hazardous Materials	Compounds, mixtures, or products that, when stored in certain quantities or containers, spilled, or when burning, create specific hazards to people and the environment.
Health Hazard	Any chemical, biological, ergonomic, or physical agent that has the potential to adversely affect employee health.
HSE	Health, Safety and Environment, used to describe people, departments, and programs in force across the organization that protect workers, the public and the environment.
IDHL	An atmosphere or situation that is immediately dangerous to health and life.
Incident	An unplanned event that may result in undesirable consequences.

Word	Definition
Incident Rates	The number of injuries, illnesses, lost time cases, lost work days and recordable incidents related to a common exposure hours base of 100 full-time workers, which enables accurate inter-industry comparisons, trend analysis or comparisons among firms regardless of size.
Lock-out	A process or device for locking out equipment to a zero energy level while in a maintenance situation.
Lost Time Cases	Cases in which the employee is unable to return to work the next scheduled shift.
Lost Work Days	The number of work days (consecutive or not), beyond the day of injury or illness that the employee was away. The total amount does not include the day of the injury or onset of the illness or any days on which the employee would regularly have been scheduled off.
Maintenance	The combination of all technical and administrative actions, including supervision actions, intended to retain an item, or restore it to a state in which it can perform a required function.
Medical Aid	Any treatment of injuries administered by a physician or registered professional personnel. This type of treatment does not include first aid treatment (i.e. one-time treatment and subsequent observations).
MSDS	Material Safety Data Sheets
Occupational Illness	Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment. It includes acute and chronic illnesses that may be

caused by inhalation, absorption, ingestion, or direct contact (e.g. repetitive stress). It differs from an injury, which is characterized by the single instantaneous exposure concept.

Occupational Injury

Any injury, such as a cut, fracture, sprain, amputation, etc. that results from a work-related event or from a single instantaneous exposure in the work environment. Note: Conditions resulting from animal, insect, or snake bites or from one-time exposures to chemicals (including chemical burns) are considered injuries.

Policy

A statement of fundamental principles and objectives established by senior management.

Pollution

Any physical, biological, or chemical substance that, when released into the environment, results in conditions that would not be found in a natural background setting.

PPE

Personal protective equipment

Protection Factor

Ratio of airborne concentrations inside to outside the respirator piece.

Purpose

The intent of a standard, practice or procedure.

Qualified Person

One who, by extensive knowledge, training and experience, is competent in administering the respiratory protection program.

Qualitative Assessment

An evaluation based on opinion or experience without the benefit of full numerical methods.

Qualitative Fit Testing

Determination of respirator leakage by use of negative and positive pressure testing.

Quantitative Assessment

An evaluation based entirely on the use of numerical methods.

Quantitative Fit Testing	Determination of respirator leakage by calculating a numerical protection factor.
ROPs	Roll over protection devices or apparatus on worker operated mobile equipment.
Recordable Cases	Cases that include a fatality, lost time, medical aid or restricted work.
Regulatory Requirements	All regulations, codes, and standards that have the authority of law.
Respirator Protection Coordinator	A qualified person designated by site management to coordinate the respiratory protection program.
Respirator Wearer	A worker who is medically qualified, instructed and trained in the need, use, maintenance, sanitary care, and limitations of such respiratory protective equipment.
Risk	The combination of the expected frequency (events/year) and consequence (effects/event) of a single accident or group of accidents.
Root Cause	The job and personal factors (such as inadequate engineering, lack of knowledge or skill, etc.) from which the substandard acts and conditions originate. Root causes are most frequently the result of inadequate safety systems, inadequate system standards, and inadequate compliance with standards.
Spill	A release, leak, discharge, or deposit of a liquid, solid substance, or product from its intended containment onto the land, into the air, or into waters or groundwater.
Standard	A statement of measurable requirements that must be achieved to meet the intent of the HSE Policy Statement.

Tailgate meeting

A meeting held at the beginning of each day to communicate the daily activities and safety related topics associated with them.

TLV

Threshold limit values, set as a standard for the level of exposure to a given substance by a worker.

Waste

A product, substance, class of substances, or mixture of substances that is intended for disposal or recycle.