Section 2

Hazard Assessment and Risk Control

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2.1 INTRODUCTION

A hazard is defined as any condition or circumstance that possesses the risk of any incident that could cause personal injury, damage to physical assets and the environment. Hazard classification helps focus attention on the need to control hazards in order of priority. The method for ranking the priority of existing conditions is based on three factors; **frequency**, **probability**, and **severity**; which when multiplied together determine **risk level** and **respective hazard classification.**

FREQUENCY		PROBABILITY	
How frequently are you around the hazard?		Will it happen?	
3	**Frequent – hourly/daily**	**3**	**Can be expected to happen.**
2	**Occasional – weekly/monthly**	**2**	**Unusual but possible to happen.**
1	**Infrequent – a few per year**	**1**	**Rarely happens.**

SEVERITY	Health	Safety	Financial
5	**Fatality**	**Catastrophic**	**Extensive damage and downtime for site**
4	**Serious injury, permanent disability**	**Serious threat**	**Major damage and downtime for site**
3	**Serious injury**	**External agencies**	**Minor damage and downtime for site**
2	**Minor injury**	**Potential Emergency Response**	**Minor damage and downtown for specific equipment**
1	**First Aid or less**	**Reportable occurrence**	**Minor damage, no downtime**

Multiply Frequency X Probability X Severity to determine Risk Assessment Level

Class A (Score of 27 - 45)	**High Risk**	**Shut down the operation immediately and correct the concern.**
Class B (Score of 18 - 24)	**Moderate Risk**	**Flag/tag the risk and provide intermediate precautions and inform everyone immediately. Initiate corrective action as soon as possible.**
Class C (Score of 10 - 12)	**Low Risk**	**Make everyone who could be exposed aware of the risk. Ensure PPE is used as a minimum and re-evaluate for current and/or alternate controls.**
Class D (Score of 3 - 8)	**Minimal Risk**	**Considered corrected when all individuals have been notified of the hazard.**

Class A Hazard

A condition or practice likely to cause permanent disability, loss of life or body part, and or extensive loss of structure, or material.

Example:

1) Non-compliance with loading / unloading ATV procedure
2) Working under suspended loads.

Class B Hazard

A condition or practice likely to cause serious injury or illness, resulting in temporary disability or property damage that is disruptive but not extensive.

Example:

1) Jumping off truck.
2) Working on equipment without lock-out procedure.

Class C Hazard

A condition or practice likely to cause minor, non-disabling injury or illness or non-disruptive property damage.

Example:

1) Lifting heavy objects using back instead of legs.
2) Use of improper/defective tools.

Class D Hazard

A condition or practice likely to cause minor injury requiring First Aid.

Example:

1) Pulling steel tow cable without gloves.
2) Small oil spills under equipment.

2.2 HAZARD ASSESSMENT

A hazard assessment is a thorough examination of an operation (job site, pipeline ROW, shop, etc.) for the purpose of identifying what actual and potential hazards exist. A hazard assessment is conducted with the direct involvement of the President and CEO when starting a safety program. It should also be conducted when setting up on a new job site by the managers/party chiefs/subcontractors and during the annual review of the loss control program by senior management (Form SM-2-001). All employees and subcontractors must be trained on proper hazard identification and risk assessment.

2.2.1 Hazard Identification

The key to effective hazard assessment and control is recognition. Some of the ways hazards are identified on All-Can projects are:

- The use of formal and informal inspections of the work site and material storage areas
- The use of pre-use inspection lists for vehicles and heavy equipment to ensure ongoing maintenance
- The use of hazard assessments by foremen and crew to review task related hazards and methods of control
- The use of hazard observation cards by workers to identify and report current hazards in workplace
- The use of Job Safety Analysis (JSA) for high risk or unusual work
- The use of workplace safety committees, where through the involvement and participation of experienced workers and management, hazards can be truly identified.
- The use of audits as a means of comparing tasks to existing procedures
- Monitoring of injury and accident trends on our projects and in similar industries

2.2.2 Hazard Control

The key to effective hazard control is to ensure that controls are implemented, evaluated for effectiveness and monitored for compliance. There are three common methods of hazard control that should be considered when presented with hazards:

Administration Controls: these types of controls generally deal with people. Though proper planning plays an important part in all hazard control, it is a must for administrative controls to be effective. Some applications of administrative controls are:

- Doing hazardous work such as sandblasting, radiography, during off hours
- Using purchasing controls to determine risks of controlled products prior to purchase
- Limiting exposure to heat, cold, noise or hygiene hazards through worker rotation

Engineering Controls: these controls deal with design of equipment or systems to protect workers or protect against failure. Engineering controls can greatly reduce hazards in maintenance and construction activities. Some applications of engineering controls are:

- Establish criteria for heavy equipment working on slopes in excess of 35°
- Installation of guards of barriers to protect against hazards
- Installation of ventilation systems to remove contaminants

Personal Protective Equipment: this type of control generally protects the worker from coming into direct contact with the hazard, but does not eliminate or reduce the hazard. Personal Protective Equipment (PPE) should be the last choice for hazard control. Due to the ever changing and temporary nature of our tasks in maintenance and construction, personal protective equipment often is the most practical and common choice. Personal protective equipment must be chosen specific for the hazard with consideration for the degree of hazard and limitations of the personal protective equipment. Do not use personal protective equipment if in doubt about its suitability for the task; rather seek information from the supplier or manufacturer.

Emergency Control of Hazard: where emergency action is required to control or eliminate a hazard that is dangerous to the safety or health of the workers, only those workers competent in correcting the hazardous condition may be exposed to the hazard**.** The number of those exposed workers must be kept to a minimum-as few as necessary to correct the condition. All-Can shall make every possible effort to control the hazard while this is being done**.**

2.3 SUPERVISOR'S DAILY HAZARD ASSESSMENT

Managers / Party Chiefs / Field Subcontractors shall conduct a hazard assessment of the work site with crew – at the start of the shift / change of task. The assessment can follow the general outlines provided in Form SM-2-002 and will be integrated into daily tailgate meeting (Form SM-7-005).

2.4 USE OF HAZARD REPORT FORMS

Workers are encouraged to be alert for current workplace hazards that have not been addressed through other hazard assessment procedures, and have them recorded with supervisory personnel. This is an effective method that encourages worker participation. (Form SM-2-002).

2.5 JOB SAFETY ANAYSIS (JSA)

2.5.1 Purpose

The purpose of this procedure is to establish a process to evaluate and control high-risk work activities.

High risk work activities shall include but are not limited to:

- Tasks that have involved, or have the potential for, serious or frequent injury
- Tasks that have the potential for environmental impact
- Tasks that have involved, or have the potential for, major or frequent equipment damage
- Tasks not adequately covered by existing procedures
- Tasks requiring a variance of existing procedures

2.5.2 JSA Controls

Work tasks involving high risk can be determined from a review of activities on the schedule.

The high-risk work activities shall be broken down into jobs generally by trade / craft. This will make the JSA easier to complete and review due to the smaller defined scope of work. This process will also work with multi-craft work as long as the scope of work is not too large.

The JSA is intended to be completed with a group involving management, supervisors, and workers. JSA do not require a large amount of personnel to complete, but they do require a cross section of experience and viewpoints to be successful.

It is important that JSA's are completed with involvement from the workers performing the tasks. This will result in a more thorough analysis of the work and hazards. It is also important that the completed JSA be reviewed with all personnel involved prior to the start of the work.

2.5.3 JSA steps:

- Detail the basic job steps or tasks and the sequence
- Identify any hazards or potential hazards.
- Identify hazard controls or existing Safe Job Procedures or Safe Work Practices that will protect against the hazards

Personnel involved in the development of the JSA shall sign the meeting attendance record at the top of the page on the back of the JSA form.

When the JSA is complete, it shall be reviewed and signed by the Superintendent.

All workers involved in the work shall have the JSA reviewed with them, and shall sign the JSA on the back to acknowledge attendance during the review.

2.5.4 Procedure Development

JSA can be used to develop standard work procedures. To develop a procedure the sequence of job steps can be combined with the hazard controls, once the hazards have been identified (Form SM-2-003).

2.6 JOINT WORKSITE HEALTH AND SAFETY COMMITTEES

The minister may, by order, require that there be established at any work site a joint worksite health and safety committee that shall:

- Identify situations that may be unhealthy or unsafe in respect of the worksite
- Make recommendations to prime contractors, contractors, employers and workers for the improvement of the health and safety of workers at or on the worksite
- Establish and maintain educational programs regarding the health and safety of workers at or on the worksite, and
- Carry out those duties and functions provided for by the adopted code.

Consult Alberta OH&S Act, Section 31, subsections (2), (3), (4), and (5) for more details.

2.7 SAFETY PROGRAM AUDIT

A safety program audit is a comprehensive and objective evaluation of the design and effectiveness of safety programs. Auditing a safety program allows us to:

- Obtain valuable input from employees and others at our work sites on the usability and practicality of the safety program.
- Evaluate each individual component of the operation to determine how well the program is being implemented.

An audit is conducted periodically by a trained safety auditor either from within the organization or from outside.

2.7.1 Procedure

- Train or select an auditor
- Gather relevant written materials that are part of safety program
- Gather job descriptions or lists of safety responsibilities
- Gather inspection checklists
- Gather hazard and accident report forms
- Gather standard work procedures
- Gather training materials
- Gather policies
- Gather emergency procedures
- Inform other employees that an audit is taking place, and how they will participate.
- Conduct the audit
- Analyze the results and report to management
- File copies of report

2.8 MONITORING OF INJURY AND INCIDENT TRENDS

This practice helps to identify inherent hazards in unfamiliar work areas. Management and workers are provided an opportunity to learn from the experience of others who perform similar work and experience common hazards.

ALL-CAN HAZARD ASSESSMENT

Hazard Assessment

Identification

Location: _____ Date of Assessment: _____

Address: _____

Assessment Team - Names, Positions: _____

_____

_____

Safety Program	Okay	Action Required
Company Safety Policy Current		
Dated		
Signed		
Posted		
Company Safety Manual Current		
Available		
Safe Work Practices in Place		
Available		
Workers Trained		
OH & S Act and Regs Available At Office		
At Field Locations		
Inspections Policy in Place		
Being Done Regularly		
Records Available		
Corrective Action Completed		
Investigation Policy in Place		
Being Done Regularly		
Recommendations Implemented		

Administration	Okay	Action Required
Assignment of Responsibilities		
Records Maintained		
Statistics Maintained and Used		
Policy for Job Site Visitors		
Worker Training		
New-Hire Orientation		
Tool Box Meetings		
Job-Specific Training		
Proper Lifting Techniques		
Training Records		
Management Safety Training		
Supervisory Safety Training		
First Aid		
Facilities		
Supplies		
Personnel		
Records		
Emergency Service Availability		
Are Emergency Numbers Posted		
Employees Know How to Get Help		

	Okay	Action Required
Fire Prevention		
Smoking/No Smoking Rules		
Scheduled Fire Inspections		
Fire Extinguishers on Vehicles		
In Buildings		
All Personnel Trained in Use		
Fire Alarm System Installed		
Inspected Regularly		
Fire Drills Held		
Fire Department Assistance		
Employees Know How to Get Help		
Personal Protective Equipment Potential Hazards:		
Heat		
Cold		
Falling Objects		
Radiation		
Toxic Gases, Vapours		
Working at Heights		
Confined Space Entry		
High Noise		
Policy/Rules in Place		
Basic PPE in Use:		
Hard Hats		
Safety Glasses		
Safety Boots		
Hearing Protection		

	Okay	Action Required
Specialized PPE Available		
Respirators		
Fall Arresting Equipment		
Welders Helmets/Goggles		
Other:		
Mobile Equipment:		
Maintenance Log Books		
Flagman Procedures		
Operator Training		
Rigger Training		
Choker and Sling Maintenance		
Traffic Patterns		
Roll-Over Protection		
Vehicles:		
Proper Maintenance		
Drivers Qualified		
Passengers Only in Passenger Vehicles		
Loads Secured		
Power Tools:		
Double Insulated or Ground		
All Guards in Place		
Maintenance Program		
Qualified Repairman Available		
"Out of Service" System in Place		
Hand Tools:		
Regular Inspection and Maintenance		
"Right Tool for the Job" Always Available		

	Okay	Action Required
Scaffolds:		
Erected by Qualified Personnel		
Inspected Before Use		
Meet Regulations		
Ladders:		
In Good Repair		
Inspection Program in Place		
Damaged tagged "Out of Service"		
Workers Trained in Correct Use		
Yards/Grounds		
Drainage		
Stacking of Materials Blocking Driver Visibility		
Near Overhead Power Lines		
Too High - Danger		
Road Signs/Speed Limits		
Lighting		
Visibility - Fog, Mist, Dust		
Parking, Fencing		
Buildings		
Lighting		
Emergency Lighting		
Ventilation		
Heating		
Access/Egress		
Trailers		
Stairs		
Catwalks		
Smoke Detectors		
Fire Extinguishers		
Blocking		

	Okay	Action Required
Facilities:		
Lunchrooms		
Washrooms		
Change rooms		
Overhead Lines		
Marked		
Workers Trained in Clearances		
Underground Installations		
Located and Marked		
Excavation Permit System Operating		
Transformers		
Protected from Traffic		
Check for PCB's		
Explosion Proof Fixtures		
Are They Required		
Are They Maintained		
Meet Code Requirements		
Temporary Installations Meet Codes		
Properly Grounded		
Extension Cords		
Three Conductor		
Strung Out of the Way		
Chemicals - WHMIS		
MSDS's		
Supplier Labels		
Workplace Labels		
Worker Training		
Transportation of Dangerous Goods		
Shipper Training		
Driver Training		
Emergency Response		

General Manager / Party Chief

ALL-CAN HAZARD REPORT FORM

DATE: _____

LOCATION: _____

EQUIPMENT: _____

HAZARD: _____

_____

_____

_____

_____

_____

_____

SIGNATURE: _____

CORRECTIVE ACTION TAKEN: _____

_____

BY WHOM: _____

DATE COMPLETED: _____

BENEFIT(S): _____

COST: _____

ACKNOWLEDGED BY:

_____

Manager/Party Chief

JOB SAFETY ANALYSIS

DATE:	JOB DESCRIPTION:	JSA #

REQUIRED PPE

- ☐ Hard Hat
- ☐ Gloves
- ☐ Steel Toed Boots
- ☐ Safety Glasses
- ☐ Helmet
- ☐ Hearing Protection
- ☐ Fire Retardant Coveralls
- ☐ Gas Monitor
- ☐ Face Shield

WORKERS INVOLVED:

REVIEWED BY:
NAME (PRINT): **SIGNATURE:** **POSITION:**

SEQUENCE OF BASIC JOB STEPS/TASKS	HAZARDS/POTENTIAL HAZARDS	RECOMMENDED HAZARD CONTROLS/OR SAFE JOB PROCEDURES

JOB SAFETY ANALYSIS MEETING ATTENDANCE

Date: _____
Y/M/D

NAME	COMPANY	CRAFT/POSITION	SIGNATURE

JOB SAFETY ANALYSIS WORKER REVIEW

Date: _____
Y/M/D

NAME	COMPANY	CRAFT/POSITION	SIGNATURE