# Life Saving Rules

**CONFINED SPACE**
Obtain authorization before entering a confined space

**WORKING AT HEIGHTS**
Protect yourself against a fall when working at height

**WORK AUTHORIZATION**
Work with a valid permit when required

**ENERGY ISOLATION**
Verify isolation and zero energy before work begins

**LINE OF FIRE**
Keep yourself, and others, out of the line of fire

**BYPASSING SAFETY CONTROLS**
Obtain authorization before overriding or disabling safety controls

**DRIVING**
Follow safe driving rules

**HOT WORK**
Control flammables and ignition sources

**SAFE MECHANICAL LIFTING**
Plan lifting operations and control the area

**FIT FOR DUTY**
Be in a state to perform work safely

**DAMAGE PREVENTION**
Plan ground disturbance activities and control the area

## Safe Construction Progress, Every Day!

TRANSMOUNTAIN

Adopted from Energy Safety Canada's **Life Saving Rules** program *(with exception of Damage Prevention)*

# Confined Space

## Obtain authorization before entering a confined space

- ☐ I confirm energy sources are isolated
- ☐ I confirm the atmosphere has been tested and is monitored
- ☐ I check and use my breathing apparatus when required
- ☐ I confirm there is an attendant standing by
- ☐ I confirm a rescue plan is in place
- ☐ I obtain authorization to enter

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**Additional Guidance**

- Energy sources may be pneumatic, hydraulic, mechanical, gravitational, chemical, electrical, nuclear, thermal or any other energy that could cause injury
- Entry into a confined space includes the worker's body entering the space or the worker's head crossing the plane of the confined space access

**Supervisor**

- I ensure confined spaces are identified and workers are competent
- I ensure a hazard assessment is conducted
- I ensure energy sources are isolated
- I ensure an adequate emergency rescue plan is in place

**Worker**

- I have the required training and knowledge to safely perform work
- I confirm the breathing apparatus is appropriate based on the work permit, hazard assessment or work procedure
- I confirm an attendant is standing by and I am authorized to enter

**Attendant**

- I have the required training and knowledge to safely perform work
- I control access to the confined space
- I conduct atmosphere testing and monitoring using appropriate equipment that includes, at a minimum, combustible gas, oxygen, $H_2S$ and carbon monoxide and may include, but not limited to, benzene and other hydrocarbons, sulphur dioxide, etc. depending on the hazard assessment
- I understand how to initiate and notify rescue personnel and/or initiate an evacuation as necessary

**RELATED LIFE SAVING RULES**

- Work Authorization
- Energy Isolation
- Line of Fire
- Bypassing Safety Controls
- Hot Work
- Fit for Duty

# Working at Height

## Protect yourself against a fall when working at height

- ☐ I inspect my fall protection equipment before use
- ☐ I secure tools and work materials to prevent dropped objects
- ☐ I tie off 100% to approved anchor points while outside a protected area

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**Additional Guidance**

- Protected areas may include stairs with handrails, man lifts and approved scaffolds
- Approved anchor points are those that are capable of safely withstanding the potential impact forces applied and meet or exceed any other applicable regulatory requirements

**Supervisor**

- I ensure a fall protection plan is in place that identifies fall protection equipment including fall restraint, fall arrest, approved anchor points and a rescue plan
- I ensure workers are competent to use fall protection equipment

**Worker**

- I have the required training and knowledge to safely perform work
- I ensure that safe guards, barriers or safety nets are in place
- I ensure that anchor points and fall protection equipment are inspected and in good condition prior to use
- I use only approved anchor points
- I verify that clearances below the work area are sufficient if an arrested fall occurs
- I secure hand tools and work materials to prevent dropped objects
- I am always tied off when at height outside a protected area

**RELATED LIFE SAVING RULES**

- Work Authorization
- Line of Fire
- Fit for Duty

# Work Authorization

## Work with a valid permit when required

- ☐ I have confirmed if a permit is required
- ☐ I am authorized to perform the work
- ☐ I understand the permit
- ☐ I have confirmed that hazards are controlled and it is safe to start
- ☐ I stop and reassess if conditions change

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**Additional Guidance**

Changing conditions may include:

- Changes in what was originally planned and captured on the permit
- Changes in work environment
- Changes in equipment
- Changes in process or operating parameters
- Changes in personnel

**Supervisor**

- I ensure the need for a work permit is understood by workers and it is safe to proceed
- I stop and reassess if conditions change
- I confirm the work is complete, and the work permit is signed off

**Permit Issuer**

- I have the required training and knowledge to safely issue work permits
- I ensure the work permit is specific to the work being planned
- I ensure adequate systems and equipment are in place for effective communication
- I ensure that any simultaneous operation which may impact the work on this permit, or if the work may impact the work of others, is identified, controlled and communicated

**Worker**

- I have the required training and knowledge to safely perform work
- I understand and follow the work permit
- I confirm hazards are controlled as stated on the work permit and that it is safe to start work
- I stop and reassess if conditions change

**RELATED LIFE SAVING RULES**

- Confined Space
- Energy Isolation
- Bypassing Safety Controls
- Hot Work
- Fit for Duty

# Energy Isolation

## Verify isolation and zero energy before work begins

- ☐ I have identified all energy sources
- ☐ I confirm that hazardous energy sources have been isolated, locked, and tagged
- ☐ I have checked there is zero energy and tested for residual or stored energy

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**Additional Guidance**

- Energy sources may be pneumatic, hydraulic, mechanical, gravitational, chemical, electrical, nuclear, thermal or any other energy that could cause injury
- For energy isolation to be an effective barrier, the energy must be turned off, locked out and tagged
- Specified life-protection equipment such as respiratory protection, electrical arc-flash protection, chemical-resistant gloves and suits protect you from certain types of hazardous energy
- Testing for residual or stored energy may involve measuring pipeline pressure, gas detection, electricity and radiation measurements, etc.

**Supervisor**

- I confirm that isolation is in place and that no stored energy or other hazardous energy remains
- I ensure adequate systems, processes and equipment (e.g. locks, tags, etc.) have been used as per site requirements

**Worker**

- I have the required training and knowledge to safely perform work
- I confirm with my supervisor or the person in charge that isolations are in place and it is safe to start work
- I ensure life-protecting equipment is used as indicated
- I never remove a lock that is not mine without authorization

**RELATED LIFE SAVING RULES**

- Confined Space
- Work Authorization
- Line of Fire
- Bypassing Safety Controls
- Hot Work
- Fit for Duty

# Line of Fire

## Keep yourself and others out of the line of fire

- ☐ I position myself to avoid:
  - Moving objects
  - Vehicles
  - Pressure releases
  - Dropped objects
- ☐ I establish and obey barriers and exclusion zones
- ☐ I take action to secure loose objects and report potential dropped objects

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**Supervisor**

- I ensure I have identified and controlled all line of fire hazards and associated risks
- I ensure workers are competent in line of fire hazard assessment and control
- I ensure line of fire, barriers and exclusion zones are incorporated into work permits, hazard assessments and work procedures
- I correct any unsafe conditions where workers are in the line of fire as dictated by equipment design, and seek engineering support to remedy

**Worker**

- I have the required training and knowledge to safely perform work
- I position myself to avoid moving objects, vehicles, pressure releases and dropped objects
- I adhere to barriers and exclusion zones identified in work permits, hazard assessments and work procedures
- I identify any unsafe conditions where I am in the line of fire as dictated by equipment design and notify my supervisor
- I ensure my vehicle is secured (in park, emergency brake on, wheels chocked, etc. as appropriate) to prevent a line of fire hazard
- I secure hand tools and materials to prevent dropped objects
- I take action when I or someone else is in an unsafe position relative to line of fire or dropped object hazards
- I report to my supervisor potential line of fire and dropped object hazards

**RELATED LIFE SAVING RULES**

- Energy Isolation
- Work Authorization
- Bypassing Safety Controls
- Working at Height
- Safe Mechanical Lifting
- Driving
- Fit for Duty

# Bypassing Safety Controls

## Obtain authorization before overriding or disabling safety controls

- ☐ I understand and use safety-critical equipment and procedures which apply to my task
- ☐ I obtain authorization before:
  - Disabling or overriding safety equipment
  - Deviating from procedures
  - Crossing a barrier

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**Additional Guidance**

- Safety-critical equipment must work correctly to keep you safe
- Some examples of safety critical equipment include:
  - Isolation devices
  - Relief valves
  - Emergency shutdown devices (ESD)
  - Lock-out/tag-out devices
  - Fire and gas detection controls
  - Emergency breathing apparatus (SCBA)
  - In-vehicle monitoring systems
  - Electronic logging device (ELD)
- Safety critical procedures must be followed
- Drug and alcohol test equipment and procedures are defined as safety critical

**Supervisor**

- I ensure safety critical equipment and procedures are identified and communicated to workers
- I ensure workers are competent in the use and limitations of safety critical equipment and procedures
- I confirm all proper authorizations are obtained

**Worker**

- I have the required training and knowledge to safely perform work
- I obtain authorization from my supervisor or the person in charge if required to override or disable a safety critical control
- I stop work and notify my supervisor if a procedural deviation is required
- I do not cross barriers or exclusion zones

**RELATED LIFE SAVING RULES**

- Energy Isolation
- Work Authorization
- Line of Fire
- Driving
- Hot Work
- Fit for Duty

# Driving

## Follow safe driving rules

- ☐ I always wear a seatbelt
- ☐ I do not exceed the speed limit, and reduce my speed for road conditions
- ☐ I do not use phones or operate devices while driving
- ☐ I am fit, rested and fully alert while driving
- ☐ I follow journey management requirements

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**Supervisor**

- I ensure workers are competent drivers for the environmental conditions anticipated with their work
- I ensure vehicles are fit for purpose and adequately maintained
- I ensure a journey management plan is created

**Driver**

- I always wear a seatbelt and do not move the vehicle until all passengers have their seat belts on
- I do not speed and I reduce speed for the road conditions such as when there is traffic congestion, adverse weather, etc.
- I do not use electronic devices to send or receive communications while driving unless otherwise authorized
- I obey the rules of the road
- I ensure equipment and materials in the vehicle are secured so they are not a distraction or a line of fire hazard to the driver or passengers in the event of an incident
- I know when a journey management plan is required and follow that plan
- I conduct pre-trip inspections of the vehicle
- I take the required rest breaks and ensure I am fully alert (fit for duty) and working within the allowable hours of service
- I stop and reassess if conditions change, such as weather

**RELATED LIFE SAVING RULES**

- Line of Fire
- Bypassing Safety Controls
- Hot Work
- Fit for Duty

# Hot Work

## Control flammables and ignition sources

- ☐ I identify and control ignition sources
- ☐ Before starting any hot work:
  - I confirm flammable material has been removed or isolated
  - I obtain authorization
- ☐ Before starting hot work in a hazardous area I confirm:
  - A gas test has been completed
  - Gas will be monitored continually

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**Additional Guidance**

- Ignition sources in relation to hot work may include welding, braising, cutting and any other activity that may generate an open flame or heat source
- Residual or stored energy in the form of trapped flammable gases and vapours may be present in equipment

**Supervisor**

- I ensure workers have and use a work permit as indicated by work procedures and/or site requirements
- I ensure workers are competent in the control of ignition sources, the management of fuel sources, and the use and limitations of combustible gas monitors
- I confirm that any simultaneous operation which may impact work is addressed in the work permit

**Worker**

- I have the required training and knowledge to safely perform work
- I obtain a work permit for hot work activities and obtain permission to bypass safety critical equipment such as flash detection (fire eyes)
- I identify and remove or isolate flammable materials such as gases, liquids and solids
- I conduct testing for residual or stored energy and only proceed with work when the energy is zero
- I conduct combustible gas testing prior to starting work and continually during the work
- I only smoke in designated areas

**RELATED LIFE SAVING RULES**

- Energy Isolation
- Work Authorization
- Line of Fire
- Bypassing Safety Controls
- Fit for Duty

# Safe Mechanical Lifting

## Plan lifting operations and control the area

- ☐ I confirm that the equipment and load have been inspected and are fit for purpose
- ☐ I only operate equipment that I am qualified to use
- ☐ I establish and obey barriers and exclusion zones
- ☐ I never walk under a suspended load

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**Additional Guidance**

- Safe mechanical lifting applies to equipment or loads that are lifted by mechanical means
- A suspended load is an object that is temporarily lifted and hangs above the ground. This applies to equipment and loads that have not been designed for workers to be beneath it during operation
- A lift plan identifies the weights and dimensions, how the lift will progress, communication requirements (signal personnel), weather and ground conditions, etc.
- Line of fire is a significant risk with overhead loads and moving equipment

**Supervisor**

- I ensure workers are competent to operate the mechanical lift
- I ensure a lift plan is in place and that workers follow the plan
- I ensure barriers and exclusion zones are established, communicated and adhered to by site personnel

**Worker**

- I have the required training and knowledge to safely perform work
- I ensure I am fit for duty
- I follow the lift plan
- I inspect the lifting equipment and adhere to all certification requirements
- I confirm the lift equipment is fit for purpose and I operate the lifting equipment below its working load limits
- I ensure line of fire hazards in relation to overhead power lines are identified, marked, and a safe distance is maintained
- I use tag lines to position suspended loads
- I adhere to barriers and exclusion zones

**RELATED LIFE SAVING RULES**

- Work Authorization
- Line of Fire
- Driving
- Working at Height
- Fit for Duty

# Fit for Duty

## Be in a state to perform work safely

- ☐ I will be physically and mentally in a state to perform my assigned duties
- ☐ I commit to not being under the influence of alcohol or drugs
- ☐ I will inform a supervisor immediately if I or a co-worker may be unfit for work

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**Additional Guidance**

- Workers or supervisors who are physically and mentally in a state to conduct their assigned duties are:
  - Physically capable of performing the duties (physical demands analysis)
  - Rested (not fatigued)
  - Mentally alert (mind on task)
  - Able to effectively communicate to their supervisor and co-workers
  - Not under the influence of drugs and alcohol

**Supervisor**

- I ensure I know how to recognize the signs of a worker who is not fit for duty
- I ensure I investigate and take action if I have reason to believe a worker may be unfit for work
- I ensure workers are physically capable of completing the assigned duties and have the necessary communication skills
- I ensure workers under my supervision are not subject to harassment or violence, as that may impact their fitness for work
- I ensure harassment or violence incidents are investigated and corrective action is taken

**Worker**

- I notify my employer of any medical condition that may influence my ability to perform work safely
- I notify my employer if I am using over-the-counter medications that may influence my ability to perform work safely
- I am not under the influence of legal or illegal drugs, alcohol, or substances that influence my ability to perform my assigned duties
- I do not participate in harassment or violence and I notify my supervisor if I observe these unacceptable behaviours
- I ensure any physical or mental limitations are identified and communicated to my supervisor for effective management
- I notify my supervisor if I or another co-worker may be unfit for work

**RELATED LIFE SAVING RULES**

- Confined Space
- Energy Isolation
- Work Authorization
- Working at Height
- Line of Fire
- Bypassing Safety Controls
- Driving
- Hot Work
- Safe Mechanical Lifting

# Damage Prevention

## Plan ground disturbance activities and control the area

- ☐ I have obtained authorization prior to starting work
- ☐ I am competent and qualified to do the work
- ☐ I have the required items in place prior to conducting work:
  - Hazard assessment
  - Ground Disturbance Plan
  - Required permits
  - Locates by a qualified, experienced locator and other investigation documents
- ☐ I have verified that it's safe to enter an excavation prior to doing so

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**Additional Guidance**

- All workers must be competent and qualified to do the work
- Identify, locate and mark all underground facilities using:
  - Public and private locates
  - As-built drawings
  - Inspection of the area for evidence of underground utilities
  - Other relevant documentation
- Identify and mark the Safety Hot Zone (2 m) from TMPL pipeline centerline and the Prescribed Area (30 m) from TMPL pipeline centerline
- Hand exposure required within 1.5 m of either side of a TMPL facility (hydro or air-vaccing may be considered) prior to work in the area
- Treat crossings as ground disturbance zones
- When backfilling, all facilities should be protected from damage and unintended movement
- Emergency Response Plan for a utility strike must be established and understood

**Supervisor**

- I have the responsibility and authority to stop all unsafe work
- I ensure all utilities are identified, marked and exposed
- I identify and mark all Tolerance and Safety Zones.
- I visually verify the location of all utilities, including pipelines with daylighting techniques
- I monitor site conditions and weather for any changes that may affect ground disturbance activities

**Worker**

- I have the required training and knowledge to safely perform work
- I confirm with my supervisor or the person in charge that all utilities are marked and exposed prior to excavating
- I understand and follow the work permit
- I stop and reassess if conditions change

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