

# Health and Safety Metric Guide

**RECORDING AND REPORTING OF SAFETY METRICS**

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# About Energy Safety Canada

Energy Safety Canada is the oil and gas industry's advocate and leading resource for the continuous improvement of safety performance. Our mission is to help companies achieve their safety goals by providing practices, assessment, training, support, metrics and communication.

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## ACKNOWLEDGEMENT

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# Preface



## PURPOSE

The purpose of this guide is to provide a framework for recording and calculating occupational health and safety metrics for the Canadian oil and gas industry. Included are techniques and examples to help determine whether injuries or illnesses are recordable for benchmarking purposes.

Using this framework encourages more consistent record keeping and can assist with benchmarking health and safety performance both for companies and industry.

## GUIDELINE SCOPE

The scope of this guide includes:

- Identification of recordable injuries and illnesses.
- Identification of contractors' eligibility for reporting.
- Calculation for exposure hours.
- Identification of recordable medical aid and first aid.

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# Introduction

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Many activities in the energy industry are high risk. Keeping workers safe requires proactive measures and continuous improvements to safety based on learnings from historical incidents. Tracking statistics can identify where injuries or illnesses are increasing or if certain projects or sites are experiencing a higher rate of incidents. This information can then be used to drive improved safety performance.

*The guide should be used to determine recordability of injuries or illnesses and does not reflect compensability of WCB claims.*

Understanding which metrics to record is key to creating useful benchmarks. This guide provides criteria, examples and techniques to help determine which injuries and illnesses should be recorded and how metric components, such as exposure hours, can be determined.

Energy Safety Canada (ESC) collects specific data on injuries, illnesses, fatalities, exposure worked and injury rates, and provides benchmark reporting back to industry (see **Appendix A** for details). Organizations can benefit from sharing their data and benchmarking their occupational health and safety (OH&S) metrics against comparable companies to improve performance.

## 2.0 Benchmark Reporting Data

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OH&S success strategy depends on capturing the right metrics, and then knowing how to use those metrics to drive improved safety performance.

A key metric is **Total Recordable Incident Rate (TRIR)**, also referred to as Total Recordable Injury Frequency (TRIF). TRIR allows an organization to assess their past safety performance by calculating the number of recordable incidents per 100 full-time workers during a one-year period. The lower the TRIR, the better a company's safety performance appears. Companies can benefit from tracking this metric year-by-year to improve their safety initiatives.

There are generally two types of key performance indicators (KPIs), or metrics, to measure health and safety performance:

**Lagging indicators** provide an overview of past performance (e.g., the number of injuries and illnesses over time). Lagging indicators show organizational trends and determine whether changes in safety processes are achieving the desired results.

**Leading indicators** provide proactive and future performance measurements (e.g., the number of planned annual field and office inspections), with the expectation of incident reduction in the future.

ESC has a Data Gateway where employers voluntarily share their company's injuries, exposure hours and TRIR metrics. The employers then receive an annual benchmark report of industry's overall health and safety performance. The reports objectively measure safety metrics against other historical and benchmark data. See **Appendix A** for more information about ESC data collection and reporting.

## 3.0 Determining Recordability of Injuries and Illnesses

This guide should be used to determine recordability of injuries or illnesses and does not reflect compensability of Workers' Compensation Board (WCB) claims. Holding WCB coverage is a legal requirement for most businesses, even when their business activities are not considered high risk.

The recordability of more complicated injuries and illnesses may require in-depth investigation by asking questions such as:

- Who had operational control of the environment which resulted in an injury or illness?
- What activity was the individual engaged in?
- Is the physical condition pre-existing or non-occupational?

*Most companies deem all health and safety incidents internally reportable and, at a minimum, follow provincial and federal reporting directives.*

The factors below help determine whether an injury or illness is recordable. If the injury or illness does not align with these factors, it may not be recordable.

### 3.1 INJURIES AND ILLNESSES

Categorization of injury or illness is based on the nature of the original event or exposure that caused the case, not by the resulting condition of the affected worker.

Injuries are caused by instantaneous events in the work environment. They typically include cuts, fractures, sprains, etc. Illnesses include acute and chronic illnesses, such as skin disease, long-term hearing loss, respiratory disorder, etc.

The basic determinant is the single-incident concept:

- If the case resulted from something that happened in one instance, it is generally classified as an injury.
- If the case resulted from something that was not instantaneous, such as prolonged exposure to hazardous substances or other environmental factors, it is considered an illness.

Fatality cases are events that involve one or more workers who died as a result of a work-related incident or occupational illness. For the purpose of collecting information, fatalities are defined and treated as work-related injuries or illnesses that resulted in death and, therefore, follow the same conditions for determining recordability.

### 3.2 WORK-RELATEDNESS

The work environment includes the employer's establishment and any field locations or remote work sites where employees conduct work-related activities or are present as a condition of their employment. If the injury or illness occurs in the employer's work environment, the activity is presumed to be work-related.

Activities are also considered work-related if an employee is at a location outside the employer's work environment, such a home office, as a condition of employment or performing duties in the interest of or at the direction of their employer.

Workers who travel on company business are considered engaged in work-related activities during the time they spend away in the interest of the employer. Commuting is not considered to be work-related unless it is within the course of employment and outside of the normal commute.

Work-related travel may include travel to and from remote work sites and trips while conducting work on behalf of the employer (e.g., driving to and from airports, shuttling clients or customers, and driving to and from business-related appointments). Work-related travel does not include any deviations from a reasonable direct route such as a side trip on the way to work for personal reasons.

### 3.3 DETERMINING NEW INJURY OR PRE-EXISTING CONDITION

An injury or illness is considered a **new case** that is recordable if:

- The employee has not previously experienced a recordable injury or illness of the same type affecting the same part of the body.
- A worker has completely recovered from a previous injury or illness.
- An event or exposure in a work environment causes the symptoms to reappear or worsen significantly.

An injury or illness is a **pre-existing condition** and not recordable if:

- It resulted solely from an event or exposure that occurred outside the work environment.
- It is an injury or illness the employee experienced while working for another employer.

An injury or illness is recordable if it results in any of the following:

- Death
- Hospitalization
- Days away from work
- Restricted work that requires a transfer to another job
- Medical treatment beyond first aid.

**Appendix B** outlines the recordability of medical aid cases versus first aids cases.

**Appendix C** includes exemptions and special circumstances impacting recordability.



## 4.0 Calculating Metrics

### 4.1 OCCUPATIONAL SAFETY PERFORMANCE DATA

The key types of data commonly recorded to measure safety performance are:

**Employee recordable injuries and illnesses:** the sum of all employee injuries annually.

**Contractor recordable injuries and illnesses:** the sum of all recorded contractor injuries annually

**Employee and contractor fatalities:** the sum of employee and contractor deaths resulting from work-related injuries or illnesses annually.

*The metrics for injuries, illnesses and fatalities are simple sums of the number of cases recorded in the year. Exposure hours are recorded using the actual or estimated number of hours worked.*

### 4.2 EMPLOYEE EXPOSURE HOURS

**Employee hours worked:** the sum of hours worked by employees during the reporting year. This sum should include all persons on a company payroll working in the corporate head office, field offices or field locations (exploratory, operating or producing). Time sheets or payroll records are the preferred source for information regarding the actual number of employee hours worked (see **Appendix D**).

If the actual number of employee hours worked is unavailable, estimate using the number of employees and standard 2,000-hour work year (50 weeks per year).

Do not include hours worked on personal service contracts under the direct supervision of employee supervisors, vacation time or statutory holidays.

### 4.3 CONTRACT WORKER DATA

In addition to the employer's own operations, there are situations where third-party contractors are working within an employer's operational control. These work sites are owned, operated and controlled by the employer and, therefore, are governed by the employer's health, safety and environment management system (HSE-MS). To determine whether a contractor is working within the employer's HSE-MS, refer to the Contractor Modes Table in **Appendix E**.

There are three possible contractor modes. Contractors operating within modes 1 and 2 are most likely governed by the operating company's HSE-MS, which means exposure hours, injuries, illnesses and fatalities are recordable to the operating employer. Contractors in mode 3 operate under their own HSE-MS and have no obligation to report their incidents to the operating employer.

### 4.4 CONTRACTOR HOURS WORKED

Determining the number of hours worked for contractors is often much more difficult than it is for employees and, in many cases, will involve estimations. Recording the actual hours worked is preferred, but estimating hours worked based on monthly or semi-monthly invoices is an option. One could also calculate exposure hours by activity.

The following outlines methods to calculate contractor hours depending on contractual relationship, project size, and type(s) of contractor service. It maybe necessary to use more than one option to calculate

contractor hours. Whatever process is used, consider documenting it and adding the various exposure hours together.

### **If Contractor Hours Are Known**

Contractor hours worked are the sum of hours worked by contractors in modes 1 and 2. There are simple ways to determine this sum:

1. Wherever possible, companies should calculate contractor hours worked based on time sheets or payroll records from the contracted company. This is the most accurate source of information.  
Vacation time and statutory holidays should not be included.
2. When actual hours worked are unavailable, but the number of contractors involved is known, estimate the contractor hours worked using a standard 2,000-hour work year (50 weeks per year).

### **If Only Contract Costs Are Known**

If actual hours worked and the number of contractors is not available, the hours can be estimated based on total contract expenditure if total contract expenditure is associated solely with labour and assuming an average contractor labour rate (see **Appendix F**). Average contractor labour rate sources: Petroleum Labour Market Information (PetroLMI); American Petroleum Institute (API)'s *Survey of Occupational Injuries, Illnesses and Fatalities in the Petroleum Industry*.

### **If Labour-specific Costs Are Not Known**

If the information necessary to isolate labour expenditures from other expenditures (e.g., materials) is not available, using a combination of methods may assist with calculating exposure hours (see **Appendix F**).

The methods selected may vary depending on project size and contractual relationship. Each employer must determine which methodologies are most reasonable.

## Appendix A: Safety Metrics Collected by Energy Safety Canada

Key performance indicators (KPIs), or metrics, collected by ESC to help companies across the oil and gas industry gauge safety performance. The metrics assist in measuring safety performance objectively against historic and benchmark data. ESC collects and reports these metrics annually and distributes reports among the participating companies.

These lagging indicators measure past performance and are the most publicised safety metric. Typical lagging safety indicators are expressed as a “frequency rate”, which show how many events happened over a given period by a standardised number of hours worked. For example, Total Recordable Injury Rate\* (TRIR)—one of the most collected rates—can help companies who perform similar projects or tasks understand how they are performing. The number does not necessarily indicate good or bad performance, but a TRIR can highlight a quick rise in incidents over a short period of time, allowing companies to change equipment, procedures or training as a reduction measure. The data measured is not indicative of future performance. Combining TRIR with other leading indicators is helpful for measuring overall safety performance. NOTE: the terms “frequency” and “rate” are used synonymously.

SAFETY ACRONYM	MEANING	FORMULA
TRIR, sometimes referred to as TRIF (Total Recordable Incident Frequency) see below	Total Recordable Incident Rate: the number of work-related injuries per 100 full-time workers during a one-year period.	(Number of recordable injuries and illnesses x 200,000*)/Employee total hours worked
TCIR, term used in OSHA Recordkeeping Guide	Total Case Incident Rate: the number of OSHA work-related injuries per 100 full-time workers during a one-year period.	Same as above

Another metric used by companies with a large workforce with employee exposure hours over one million:

TRIFR	Total Recordable Injury Frequency Rate: the number of fatalities, lost time injuries and other injuries requiring medical treatment by a medical professional per million hours worked.	(Recorded fatalities, LTIs <sup>†</sup> , other injuries requiring medical treatment from a professional x 1,000,000)/Employer total hours worked
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\*Represents the number of hours worked by 100 full-time employees, 40 hours per week for 50 weeks per year.

<sup>†</sup>Lost time incidents

$$\text{Employee TRIR/TRIF} = \frac{\# \text{ injuries} + \text{illness} + \text{fatalities} \times 200,000}{\text{Employee hours}}$$

Contractor + Employee  
TRIR/TRIF =

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$$\frac{\text{Contractor (\# injuries + illness + fatalities) + Employee (\#injuries + illness + fatalities)} \times 200,000}{\text{Contractor + Employee hours}}$$

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Contractor + Employee hours

Statistics are broken down regionally by:

- Western Canadian Sedimentary Basin
- Atlantic Canada
- Mine Upgrader
- Oil Sands In-situ

The metrics, recorded by region, are:

- Employee Recordable Injury (and Illness) Rate
- Contractor Recordable Injury (and Illness) Rate
- Total Recordable Injury (and Illness) Rate
- Total Number of Fatalities

ESC develops several reports from the collected data, which are made available to companies that have volunteered their data:

- Single employer report
- Anonymized and aggregated data from all participants
- Aggregated reports where volunteer participants agree to publish their company names and data

## Appendix B: Recordability: Medical Aid vs First Aid

TYPE OF INJURY	MEDICAL AID (RECORDABLE) Any condition not on the first aid list that required treatment is likely recordable.	FIRST AID (NOT RECORDABLE) Any observations, testing or evaluation diagnostic decisions such as diagnostic procedures such as x-rays, including prescribing or administering of prescription medications solely for diagnostic purposes.
<b>Cuts, lacerations, punctures, abrasions, animal or insect bites</b>	<p>Sutures (stitches)</p> <p>Staples</p> <p>Surgical glue</p> <p>Treatment of infections with prescription medications.</p> <p>Preventative immunizations such as hepatitis B or rabies vaccine.</p>	<p>Any coverings or bandaging by any medical personnel.</p> <p>Liquid bandage.</p> <p>Cleaning, flushing or soaking wounds on the surface of the skin.</p> <p>Wound coverings such as bandages, gauze pads, butterfly bandages such as Steri-Strips.</p> <p>Tetanus immunization.</p>
<b>Splinters</b>	<p>Foreign bodies that require more than simple means to remove because of location, depth, penetration, size or shape.</p> <p>Surgical removal of foreign bodies in the eye.</p>	<p>Removing foreign bodies from the eye using only irrigation or cotton swab.</p> <p>Removing foreign materials from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means.</p>
<b>Strains, sprains, and dislocations</b>	<p>Casts or immobilization with brace or rigid stay, as prescribed by a health care professional.</p> <p>Chiropractic manipulation and physical therapy as prescribed by a health care professional.</p>	<p>Hot or cold therapy</p> <p>Non-rigid means of support, such as elastic bandages, wraps or back belts, typically available over the counter.</p> <p>Finger guards.</p> <p>Temporary immobilization devices while transporting victims.</p>
<b>Burns, skin rashes and blisters</b>	<p>Any conditions that result in days away from work, restricted work, or medical treatments beyond first aid. Burns should be diagnosed by a physician to determine degree of damage.</p>	<p>Draining fluid from a blister.</p>
<b>Contusions (bruises)</b>	<p>Draining contusions with a needle.</p>	<p>Soaking, hot or cold therapies.</p>

TYPE OF INJURY	MEDICAL AID (RECORDABLE) Any condition not on the first aid list that required treatment is likely recordable.	FIRST AID (NOT RECORDABLE) Any observations, testing or evaluation diagnostic decisions such as diagnostic procedures such as x-rays, including prescribing or administering of prescription medications solely for diagnostic purposes.
<b>Medications</b>	<p>Prescription medication, whether given once (single dose) or over a longer period.</p> <p>Prescription medication, whether prescription is filled, taken or not.</p> <p>Non-prescription medication administered or prescribed at prescription strength.</p>	<p>Non-prescription medicines at non-prescription strength, whether in ointment, cream, pill, liquid, spray or other form.</p>
<b>Loss of consciousness</b>	<p>Loss of consciousness resulting from a workplace event or exposure (chemicals, heat, oxygen-deficient environment, blow to the head).</p>	<p>Loss of consciousness due solely to epilepsy, diabetes, narcolepsy or other health condition or due to voluntary participation in a wellness or similar program.</p>
<b>Cut or puncture to skin from needle or other sharp objects</b>	<p>Needle stick injury or cut from a sharp object that is contaminated with a person's blood or other potentially infectious materials.</p>	
<b>Hearing loss</b>	<p>Work-related, noise-induced hearing loss from a single event. See case studies below for further information.</p>	
<b>Heatstroke, sunstroke, heat exhaustion, heat stress, or other effects of environmental heat. Freezing, frostbite and other effects of environmental exposure.</b>	<p>Condition resulting from a workplace event or exposure and requires medical intervention.</p>	<p>Observations, evaluations, including administering of non-prescription medications and fluids.</p>

TYPE OF INJURY	MEDICAL AID (RECORDABLE) Any condition not on the first aid list that required treatment is likely recordable.	FIRST AID (NOT RECORDABLE) Any observations, testing or evaluation diagnostic decisions such as diagnostic procedures such as x-rays, including prescribing or administering of prescription medications solely for diagnostic purposes.
<b>Effects of ionizing radiation (welding flash, ultraviolet rays, lasers)</b>	Condition resulting from a workplace event or exposure and requires medical intervention.	Use of eye patches.
<b>Hernias</b>		Generally, hernias are a result of long-term conditions including prolonged physical stress and require physician’s intervention and potential repair. Not recordable unless determined by a physician that the condition was a result of a one-time event. Most likely compensable.

### Example Case Studies for Recordability

Some injuries and illnesses are not easily categorized as recordable or not. In the following examples, five different cases of hearing loss are presented along with an explanation of why they are or are not recordable.

#### Case 1:

Jane joins an employer in the oil and gas sector. She is assessed with perfect hearing on her first day, but after an onsite explosion a physician says her hearing is impaired due to the explosion.

This is recordable because the injury was work-related (it happened on the company’s work site) and the injury was new and significant. NOTE: Because it stems from a single incident, the hearing loss in this case would be classified as an injury.

#### Case 2:

Jane changes her employment to another company working in the oil and gas sector. Her hearing is assessed as damaged on her first working day, but she complains of further hearing loss after a year on the job. There were no major noise sources on her work site, tests reveal no abnormal hearing loss, and a physician says the progression is likely due to a pre-existing condition.

Even though the initial injury was work-related, this case is not recordable because it is not a new injury.

**Case 3:**

In the course of her continued employment, Jane's hearing loss becomes further impacted when a large tank falls next to her. A physician says the noise from the tank hitting the ground further impacted the damaged hearing, and tests reveal an abnormal loss.

This case is recordable and would be a new injury. It was work-related and, while the injury is technically not new, the additional event significantly aggravated the pre-existing injury.

**Case 4:**

At 50 years of age, a worker embarks on a new career working in the upstream oil and gas sector. The work site is typically noisy, so precautions are taken for noise abatement and no noise related incident takes place. After 10 years with the company, the worker experiences hearing loss and blames the work environment. However, the hearing loss was gradual, and a physician says no abnormal loss was found during regular hearing tests, so the hearing loss is likely due to the normal aging process.

Case 4 is not recordable. While there was an injury/illness in the form of hearing impacts, it was not deemed to be work-related.

**Case 5:**

Jeff works in the upstream oil and gas sector inputting data from wells to a database. His work environment is quiet and within ambient noise regulations. On weekends, Jeff plays in a rock band. After several years, he complains of hearing loss and his physician says there has been recent abnormal loss.

This is not recordable. While an injury/illness has occurred, every indication suggests the damage did not occur in the work environment and, therefore, was not work-related.



## Appendix C: Exceptions and Special Circumstances

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The following injuries and illnesses are **not** recordable:

- Injuries and illnesses incurred while performing normal life activities e.g., eating, sleeping, recreation.
- Injuries and illnesses incurred while participating in social events off- establishment, regardless of the worker's pay status, unless the worker is required to participate in the social events as a condition or expectation of employment.
- Injuries incurred on a public sidewalk during a work break, and injuries or illnesses incurred in public parking lots during a normal commute are not work-related and generally not recordable, unless:
  - Injuries incurred on a public sidewalk while engaged in work-related activity, such as walking to a business meeting, are recordable.
  - If an injury or illness occurs in a company-maintained parking lot and is due to a deficiency in that parking lot such as potholes, icy conditions, accumulated debris, etc. during normal commuting, the injury or illness is recordable.
- Injuries and illnesses incurred during travel if the worker deviates from a reasonably direct route such as a side trip for vacation or other personal reasons are not work-related, thus not recordable.
- Injuries and illnesses incurred in a cafeteria open to the public are not presumed to be work-related, even if the cafeteria is in a building owned by the employer and the employer subsidizes the cost of the cafeteria.
- Injuries and illnesses incurred on the front steps of a public building in which the employer leases space is not considered to be the employer's establishment and are therefore not recordable.
- Injuries and illnesses that result solely from voluntary flu shot programs on the employer's premises are not considered to be work-related. If a vaccination is given off-premises and the worker voluntarily chose to receive the vaccine, then a reaction to the shot is not work-related or recordable. If the worker was given the shot off the employer's premises but as a condition of employment, then a reaction to the shot is deemed work-related.
- Injuries and illnesses that result solely from the donation of blood during voluntary blood drives on the employer's premises are not considered to be work-related and are not recordable.
- Incidents involving workers at onsite physical fitness centers are not work-related, even if the employer encourages participation in fitness programs, and subsidizes the costs of participation and only workers may use the centres. If participation is mandatory, then resulting injuries or illnesses are work-related.
- The common cold or flu is not recordable, even when it is contracted in the work environment.

**Exception:** when a worker is made ill by ingesting food contaminated by workplace contaminants, such as lead, or gets food poisoning from food supplied by the employer. In this case, it would be considered work-related, and if the worker required treatment beyond first aid it would be recordable.

## Appendix D: Calculating Employee Annual Hours Worked

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Estimates for hours worked can be calculated from payroll records using one of the following formulas:

**Monthly pay period:**

Number of employees x 166.7 hours x 12 pay periods = annual hours worked

**Semi-monthly pay period:**

Number of employees x 83.3 hours x 24 pay periods = annual hours worked

**Biweekly pay period:**

Number of employees x 76.9 hours x 26 pay periods = annual hours worked

Example: An employer has an average of 65 employees paid semi-monthly over the reporting year.

Therefore, 65 employees x 83.3 hours x 24 pay periods = 129,948 annual hours worked.

## Appendix E: Contractor Modes: Determining the Relationship to the Operating Company

The following table can be used to determine whether a contractor is working within the employer's operational control.

MODE	DESCRIPTION	OPERATING EMPLOYER ROLE
1. Contractor works within HSE-MS of operating employer.	The contractor provides people, processes and tools for the execution of a contract and is under the supervision, direction or instructions, and the HSE-MS of the operating employer.	Supervision, direction and inspections
2. Contractor executes contract under its own HSE-MS. Operating employer has some HSE direction and authority.	The contractor executes the contract under its own HSE-MS, providing the necessary direction and supervision, and verifying its own HSE-MS. The operating employer is responsible for verifying the overall effectiveness of the HSE management controls put in place by the contractor, including its interface with subcontractors and the assumption that operating employer and the contractor's HSE-MSs are compatible.	Monitoring, auditing and inspections
3. Contractor is independent.	The contractor's HSE-MS has no interface with the operating employer's HSE-MS.  Generally, the contractor is not required to report HSE performance data, including injuries or illnesses, to operating company. Does not preclude the contract with operating employer. Contract might influence HSE performance. Review contract for clarity.	Pre-qualification

Continued - Examples of Contractor Mode 3 Methodology

EXAMPLE	EXPLANATION
<p>Offsite construction sites, fabrication shops, design, and engineering firms where the HSE-MS of the contractor governs activity HSE direction, decision and authority.</p>	<p>Contractor exposure hours, injuries and illnesses occurring are within contractor mode 3 and are not recordable to operating employer.</p>
<p>Personnel transportation contractors including aviation services (helicopters, fixed wing transport, etc.) and public road transportation (buses, vans, automobiles, trucks) that are not fully dedicated to an operating employer.</p>	<p>Personnel transportation contractors that are not provided by or fully dedicated to an operating employer are assumed to be operating under the contractor’s HSE-MS (mode 3).</p> <p>Once on site (ground transportation within site boundaries, air transportation landed on runway or helipad), the HSE-MS governing activity must be considered. If an operating employer’s HSE-MS is in place and the contractor is subject to the operating employer’s HSE direction and authority (mode 2), then contractor exposure hours and injuries and illnesses may be recordable to an operating employer. Refer to relationship as defined in the contract.</p> <p>For personnel transportation contractors that are provided by or fully dedicated to the operating employer’s HSE-MS (mode 1) or when the operating employer has HSE direction and authority (mode 2), then contractor exposure hours, injuries and illnesses are recordable.</p>
<p>Material transportation contractors, including third party truck deliveries and shipments (crude, product and other) when not fully dedicated to an operating employer.</p>	<p>Material transportation contractors that are not fully dedicated to an operating employer are assumed to be operating under the contractor’s own HSE-MS (mode 3).</p> <p>Once arriving on site, this may change depending how HSE-MS direction and authority are defined in the contract. While on the operating employer’s work site, contractors may include recording of contractor exposure hours, injuries and illnesses.</p>

## Appendix F: Calculating Contractor Exposure Hours Worked

It is preferable to report actual hours tracked through the company's hourly tracking processes. If actual contractor hours are not available, the following estimates of person-hours per \$1 million dollars of contract expenditures by industry activities may be useful. Methods are based on the contractor exposure hours as defined by the API's *Survey of Occupational Injuries, Illnesses and Fatalities in the Petroleum Industry*. Equations can be used to estimate the total contractor exposure hours assuming an average contractor labour rate of Canadian \$53.24 (2021 rates) per hour, sourced as above and Canadian wage survey from PetroLMI. Method 1 was included from the *API Guide for Hazardous Liquid Pipeline Operators*.

### Method 1 - Contract Estimates by Finances

When contract hours are not available, the following estimates of person-hours / \$1 million dollars of contract expenditures for different industry activities may be useful.

Contractor hours may be estimated using the following assumptions:

- Contractor labour can be 50% of total contractor dollars spent
- Contractor hours are equal to contractor labour expense divided by \$53.24/hour, or by:

INDUSTRY ACTIVITY	HOURS / \$MM CONTRACT EXPENDED
Geophysical	18,000
Drilling and Completions	9,375
Facilities Construction	6,750
Pipeline Construction	6,750
Wellsite Abandonment and Reclamation	13,500
Field Operations*	12,750

\*Field operations include all contract operating, electrical and mechanical maintenance, work overs, fluid transportation, and inspection and site maintenance activities.

### Method 2 - Percentage of Expenditure

The percentage of labour figures provided allows companies to estimate the proportion of a typical project budget or expenditure attributable to labour versus materials, equipment, etc. by contractor activity type. Where a total company activity budget is known (e.g., geophysical, drilling and completions) the following labour-component percentages can be used to determine the dollar value.

INDUSTRY ACTIVITY	PERCENTAGE LABOUR OF BUDGET
Geophysical	52%
Drilling and Completions	27%
Facilities Construction	20%
Pipeline Construction	20%
Wellsite Decommissions and Reclamation	39%
Field Operations*	37%

\*Field operations include all contract operating, electrical and mechanical maintenance, work overs, fluid transportation, and inspection and site maintenance activities.

The result can be divided by a weighted average labour rate to determine the total number of contractor hours attributable to that activity. For example: Company has a geophysical budget of \$6 million for the reporting year. The estimated contract worker hours for the geophysical project would be:

$$(0.52 \times \$6,000,000) = \$3,120,000 \text{ (labour cost)} / \$53.34 \text{ (labour rate)} = 58,603 \text{ hours}$$

## Appendix G: Glossary

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TERM	DESCRIPTION
<b>Compensable</b>	A compensable injury or illness is a work-related injury or illness that qualifies a worker for workers' compensation benefits. The injury or illness arises out of and occurs in the course of employment and requires medical services or results in disability or death.
<b>Contractor</b>	A contractor is an independent business entity, or the individual(s) it employs, that is engaged through verbal or written agreement to perform services. Subcontractors and personal services contractors are contractors.
<b>Diagnosis of an injury or illness</b>	A diagnosis can be made by a physician, other health professional or professional board-certified medical personnel.
<b>Drilling and completions</b>	Drilling is the process of boring into the earth for the purpose of extracting oil or natural gas. The drilling process includes the placement of casing in the borehole. Completion is the process of making a well ready for production. This involves preparing the bottom of the hole to the required specifications, running-in the production tubing and its associated down hole tools, perforating and stimulating as required, and running-in and cementing the casing. Drilling and completions operations include water wells, boreholes, auger rigs and coring operations.
<b>Employee</b>	An employee (or worker) is an individual engaged in company-directed activities. This includes workers on probation and, in some cases, an unpaid individual (e.g., government-sponsored interns or co-op students under direct company supervision).
<b>Employer</b>	An employer is an entity engaged in a business that pays people (employees) to carry out activities in the interest of the business.
<b>Establishment</b>	An establishment is a physical location where business is conducted or where services or industrial operations are performed. For activities where workers do not work at a single physical location, the establishment is represented by main and/or branch offices, terminals, stations, etc., that is the base from which workers carry out work-related activities.
<b>Exposure hours</b>	Exposure hours comprise the total number of hours of employment including overtime and training. Leave, sickness and other absences are not considered in exposure hours.

TERM	DESCRIPTION
<b>Facilities construction</b>	Facilities construction includes construction of oil and gas batteries, compressor stations, pipeline and oilfield injection treating facilities, etc.
<b>Fatality</b>	A fatality is a death resulting from a work-related injury or illness.
<b>Field operations</b>	Field operations include all contract operating, electrical and mechanical maintenance, workovers, fluid transportation, inspections and site maintenance activities.
<b>First aid</b>	First aid is the first and immediate assistance given to any worker suffering from an illness or injury during employment. For use within this guide, first aid means: any condition or event that arises out of employment which causes a worker to visit a health provider for diagnostic purposes, or the single use of (measured quantity) of a therapeutic agent taken one time.
<b>Geophysical</b>	Geophysical exploration is an applied branch of geophysics that uses surface methods to measure the physical properties of the earth's subsurface to detect or infer the presence of oil or gas. Commonly used geophysical techniques include seismic reflection and well logging.
<b>Illness</b>	Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. Occupational illness may be caused by inhalation, absorption, ingestion of or direct contact with a hazard, as well as exposure to physical and psychological hazards. It will generally result from prolonged or repeated exposure.
<b>Injury</b>	Any injury which results from a work-related activity or from an exposure involving a single incident in the work environment.
<b>Lost time injury</b>	A workplace injury sustained by a worker while on the job that prevents them, temporarily or permanently, from working beyond the date of the event.
<b>Medical treatment</b>	Medical treatment is the management and care of a patient to treat any condition that arises from employment. For use within this guide, medical treatment means "any condition not on the first aid list that required treatment is likely recordable".
<b>Midstream</b>	Midstream activities include the storage, processing and transportation of petroleum products.



TERM	DESCRIPTION
<b>Normal life activities</b>	Injuries and illnesses incurred during normal life activities (e.g., eating, sleeping or recreation) are not considered to be work-related. Recreational activities may be recordable if the worker's participation in the activities was work-related (e.g., the activity involved transacting, promoting, or discussing business) or was known to be an expectation of employment.
<b>Physician or other health care professional</b>	A physician or other board-certified health care professional is an individual whose legally permitted scope of practice (e.g., license, registration, or certification) allows them to independently perform, or be delegated the responsibility to perform, the diagnostic and health care activities.
<b>Pipeline - Gas</b>	Gas gathering and trunk line operations of natural gas transmission lines up to the point of retail distribution.
<b>Pipeline - Liquid</b>	Gathering system and trunk line operations for crude oil; transportation via pipeline of refined and semi-refined products, pipeline station operations.
<b>Pipeline construction</b>	Pipeline construction covers the civil work involved in laying pipeline, building pump/compressor stations, and work-related to the installation of field devices that support remote operations.
<b>Pre-existing condition</b>	A pre-existing condition is any condition that existed prior to a work-related injury or illness and may include injuries, disease or degenerative conditions. The condition may have existed pre-injury or may have been evident prior to the occurrence of the work-related injury/disease.
<b>Recordable or Record</b>	In the context of this guide: work-related injury or illness suitable for being recorded. In worse case scenarios, you must do more than record the incident.
<b>Reportable</b>	A formal statement about an injury or illness to the necessary authority.
<b>Reporting year</b>	Reporting year, in this guide, refers to the calendar year beginning January 1 and ending at midnight December 31.

TERM	DESCRIPTION
<b>Restricted work</b>	<p>Restricted work occurs when, as the result of a work-related injury or illness:</p> <ul style="list-style-type: none"> <li>• The employer, in discussion with worker and a health care professional and/or employer process, restricts an employee from performing one or more routine functions of the job, or from working the next full workday that the employee would otherwise have been scheduled to work; or</li> <li>• A physician or other board-certified health care professional recommends that the employee not perform one or more routine functions of the job, or not work the next full workday that they would otherwise have been scheduled to work.</li> </ul>
<b>Routine work activities</b>	<p>Work activities and tasks that a worker regularly performs at least once per week.</p>
<b>Upstream</b>	<p>The exploration, development and production of petroleum resources are known as the upstream sector of the petroleum industry.</p>
<b>Work environment: exceptions and special circumstances</b>	<p>Accountability for maintaining the establishment is a significant factor in determining whether the employer is in control of the work environment. When the employer has accountability for maintaining the premises, including common entry/exit areas, then the case is usually work-related. If the employer is not accountable for maintaining an area (e.g., public parking lot), then the case is usually not work-related. For recording purposes, the definition of work establishment excludes all employer-controlled recreational facilities that are often apart from the workplace and are used by workers on a voluntary basis for their own benefit, primarily during off-work hours.</p>
<b>Work-relatedness - special circumstances</b>	<p>Cases are recordable if the worker was on duty when the work-related exposure occurred. For example, injuries incurred while a worker is intoxicated at work are work-related despite the intoxication. Injury or illness resulting from an "Act of God", such as being struck by lightning while at work, is work-related.</p> <p>Injury or illness occurring during employment due to someone's willful act is recordable, regardless of whether it occurs on or off an employer's establishment. For example, a worker on a business trip who was assaulted and sustained injuries is recordable. Also, an injury or illness resulting from horseplay, a physical altercation or fight, or a criminal act at a company establishment is recordable.</p>

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**Work-relatedness - injuries or illnesses occurring off the employer's establishment**

**Home office**

When an employee is working on company business in his or her home and reports an injury or illness to the employer, and the employee's work activities caused or contributed to the injury or illness or significantly aggravated a pre-existing condition, the case is considered work-related and may be further evaluated to determine whether it meets the [recording](#) criteria. If the injury or illness is related to non-work activities or to the general home environment, it is not considered work-related or recordable.

**Mobile work environment**

A vehicle away from its home base could be considered off the employer's establishment. However, injuries experienced during these activities are work-related because the workers are engaged in work-related activities.

**Offsite training**

Where a worker is injured or becomes ill at an off-establishment training session, such as safety training, the case is work-related if the worker was present as a condition of employment.

**Workers on offshore rigs**

Rig workers are always deemed to be in the work environment, even outside of work hours. Trips to and from the rig are work-related travel.

**Workers in camps**

For the purposes of this guide, injuries and illnesses that occur outside of work hours in camps are generally not recordable, even when the employer owns and operates the camp. Injuries or illnesses that occur in a camp during work hours, or when the employee is directed to be there as part of their duties, are considered recordable. Exceptions: if the injury or illness is solely the result of an employee eating drinking or preparing food and required medical treatment beyond a first aid, then it is work-related and recordable.

**Workers Staying in Hotels**

When a worker checks into a hotel or motel, they establish a "home away from home". Generally, in this status, injuries that occur are not work-related.

**Travel**

Injuries or illnesses incurred during a normal commute to and from work are not presumed to be work-related. Travel after work between a worker's residence and a destination as part of employment would be considered work-related. For workers who regularly travel between several work sites during the day, trips from home to the first work site and from the last work site to home are not work-related commutes. After completion of the work at the first assignment,

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TERM	DESCRIPTION
	<p>injuries or illnesses sustained travelling to and from other work sites are considered work-related.</p> <p>Travel between a worker's residence (temporary or permanent) during the worker's normal area of operations is not considered work-related. Any travel within the course of employment to a different location outside the normal commute is considered work-related.</p>

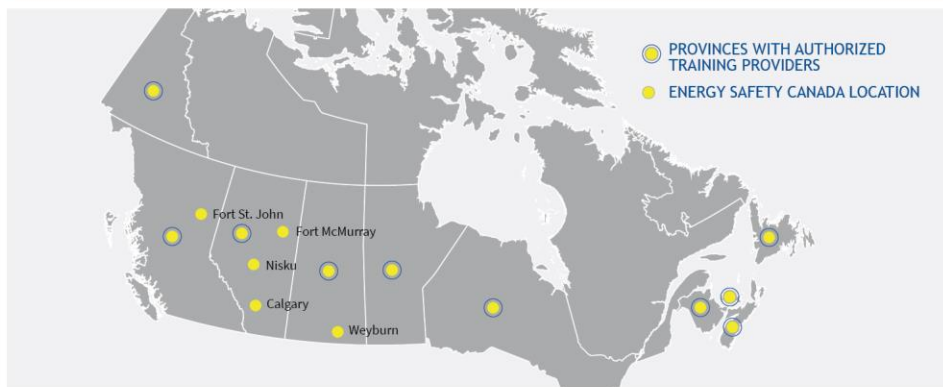
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