Occupational Fatalities in the Oil and Gas Industry (AB & SK)

2001 to 2022

Data Source: WCB Alberta, Saskatchewan WCB, AWCBC, data as of Q4 2022
Report Date: July 25, 2023

This report analyses occupational fatalities within Energy Safety Canada’s funding sectors in the provinces of Alberta and Saskatchewan, including a year-over-year comparison of the fatality rate (number of fatalities per 100,000 person-years). This report addresses all categories of occupational fatalities including workplace incidents, work-related transportation accidents and chronic occupational diseases from exposure to harmful substances.

1.0 OCCUPATIONAL FATALITY RATE AND TREND

In the oil and gas industry in Alberta and Saskatchewan, 329 people died on the job between 2001 and 2022. As Figure 1 illustrates, there was a significant decline in the yearly fatality rate of almost 90% since 2001. It also highlights significant increases in fatality rate in years following industry contraction.

Figure 1 also compares the oil and gas Fatality Rate to the overall Fatality Rate for all industry codes within Alberta and Saskatchewan. Between 2001 and 2010, the Fatality Rate for the oil and gas industry was higher than the combined provincial average. By 2011, the oil and gas fatality rate was lower than the average for the first time, and the downward trend continues.

FIG 1: OCCUPATIONAL FATALITY RATE TREND IN ALBERTA AND SASKATCHEWAN

“*All Industry Codes*” data retrieved from AWCBC. 2022 data unavailable.
2.0 EVENT OR EXPOSURE TYPES (2001 TO 2022)

Occupational injuries are classified based on a standardized set of definitions. In Figure 2, fatalities are grouped by category of accident type. Transportation Accidents accounts for 40% of the total occupational fatalities, followed by Exposure to Harmful Substances (23%) and then Contact with Objects and Equipment (14%).

FIG 2: EVENT OR EXPOSURE TYPE (BY FATALITY COUNT)

3.0 EVENT OR EXPOSURE TYPE TREND - TOP FIVE ACCIDENT TYPES (2001 TO 2022)

Figure 3 below presents the fatality count trend for the five most common fatalities in the oil and gas industry. These accidents account for 86% of all fatalities. Transportation Accidents are the largest cause of death for most years.

FIG 3: TOP FIVE EVENT OR EXPOSURE TYPES, BY NUMBER OF FATALITIES

- Transportation Accidents
- Exposure to Harmful Substances or Environments
- Contact with Objects and Equipment
- Fires and Explosions
- Falls
- Other
4.0 TOP FIVE EVENT OR EXPOSURES - SUB-CATEGORIES (2001 TO 2022)

The five largest accident types are broken into more specific sub-categories.

4.1 TRANSPORTATION ACCIDENTS (40% OF TOTAL OCCUPATIONAL FATALITIES):

This division covers events involving transportation vehicles, powered industrial vehicles, or powered mobile industrial equipment, and the injury or illness is due to a collision or other type of traffic accident, a loss of control, or a sudden stop, start, or jolting of a vehicle, regardless of the location where the event occurred. Cases classified in this division include pedestrians, roadway workers, and other non-passengers struck by vehicles or powered industrial equipment, on or off the roadway, when at least one vehicle was in regular operation and the impact was caused by a traffic accident or forward/backward travel of the vehicle (source: CSA Standard Z795).

Within this category, Highway Accidents account for 73% of total occupational fatalities.

FIG 4: TRANSPORTATION ACCIDENTS SUB-CATEGORIES

- 73% Highway accident
- 13% Pedestrian, nonpassenger struck by vehicle, mobile equipment
- 7% Transportation accident, UNS
- 4% Nonhighway accident, except rail, air, water
- 2% Railway accident
- 1% Aircraft accident

4.2 EXPOSURE TO HARMFUL SUBSTANCES (23% OF TOTAL OCCUPATIONAL FATALITIES):

This category applies to cases in which the fatality results from contact with, or exposure to, a condition or substance in the environment (source: CSA Standard Z795).

Occupational diseases, like asbestosis, mesothelioma or other systemic disorders, resulted in 76% of these fatalities. The remainder were mostly traumatic injuries, or chemical and electrical burns.

FIG 5: EXPOSURE TO HARMFUL SUBSTANCES, NATURE OF INJURY

- 37% Respiratory system diseases
- 26% Malignant neoplasms and tumors (cancers, carcinomas, sarcomas)
- 21% Traumatic injuries and disorders
- 7% Neoplasms, tumors, and cancer, UNS
- 5% Other symptoms, NEC
- 3% Burns
- 1% Neoplasms, tumors, and cancer, NEC
4.3 CONTACT WITH OBJECTS AND EQUIPMENT (14% OF TOTAL OCCUPATIONAL FATALITIES):

This category applies to occupational fatalities caused by contact between the injured person and the source of injury, except when contact was due to a fall, transportation accident, fire, explosion, assault, or violent act (source: CSA Standard Z795).

Within this category, 55% of fatalities resulted from the worker being struck by an object, most often a falling object.

**FIG 6: CONTACT WITH OBJECTS SUB-CATEGORIES**

- 55% Struck by object
- 40% Caught in or compressed by equipment or object
- 4% Contact with objects and equipment, UNS

4.4 FIRES & EXPLOSIONS (4% OF OCCUPATIONAL FATALITIES):

Cases in which the injury or illness resulted from an explosion or fire. Included are cases in which the person fell, jumped, inhaled a harmful substance, or struck or was struck by an object as a result of an explosion or fire (source: CSA Standard Z795).

Explosions caused 86% of these fatalities.

**FIG 7: FIRES & EXPLOSIONS SUB-CATEGORIES**

- 86% Explosion
- 14% Fire—unintended or uncontrolled

4.5 FALLS (4% OF OCCUPATIONAL FATALITIES):

Falls are events in which the injury is produced by impact between the injured person and the source of injury when the motion producing contact was generated by gravity (source: CSA Standard Z795).

75% of these fatalities were due to a fall from height.

**FIG 8: FALLS SUB-CATEGORIES**

- 75% Fall to lower level
- 25% Fall on same level
DEFINITIONS

**Fatality:** An occupational fatality is defined as the death of a worker resulting from a work-related incident or exposure that is accepted by the WCB for compensation.

**Fatality Rate:** The measure of frequency with which fatalities occur. It represents the count of occupational fatalities per one hundred thousand person-years.

**Fatality Rate - All Industry Codes:** The Fatality Rate for all industry codes within Western Canada were obtained from the Association of Workers’ Compensation Boards of Canada (AWCBC) ([http://awcbc.org/](http://awcbc.org/))

**Fatality Type:** The type of accident, also called event or exposure, as per CSA Standard Z795 - Coding of Work Injury or Disease Information. It defines the way an injury or disease was caused or inflicted.

**NEC:** Acronym for “Not Elsewhere Classified”. This code is used when the type of fatality doesn’t match any other defined sub-type.

**Person-Years (PY):** Estimated number of full-time equivalent workers (2,000 work hours). It is derived from the employer’s reported insurable earnings (assessable payroll) and the industry’s average wage.

**UNS:** Abbreviation for “Unspecified”. This code is used when there is insufficient information about the fatality type to assign a more detailed description.
**Energy Safety Canada’s Funding Sectors:** The fatality claims data for the following oil and gas industry codes within two provinces (Alberta and Saskatchewan) is aggregated for the report analysis:

### ALBERTA

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<th>#</th>
<th>Industry Code Description</th>
<th>Industry Code</th>
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<td>1</td>
<td>Drilling-Oil/Gas Wells</td>
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<td>Drilling-Rathole/Rig Anchor</td>
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<td>Drilling-Shot Hole</td>
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<td>4</td>
<td>Field Production Operations</td>
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<td>5</td>
<td>Mud Logging Services</td>
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<td>6</td>
<td>NDT Testing Including Visual Inspect</td>
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<td>8</td>
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<td>Sulphur Process</td>
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### SASKATCHEWAN

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<td>Service Rigs and Water Well Drilling</td>
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**Data Disclaimer:** While every reasonable effort has been made to ensure the accuracy of the data used in this report, data should be read as indicative of scope rather than exact figures. The variable nature of WCB claims management may be reflected in the data shown. Please contact PMetrics@EnergySafetyCanada.com for any concerns or questions regarding this report.