

**E N E R G Y
S A F E T Y
C A N A D A**

Potentially Serious Incidents Summary

2019 - 2024 Data

DECEMBER 2025

THE NATIONAL SAFETY ASSOCIATION FOR CANADA'S ENERGY INDUSTRY

Executive Summary

This report provides a comprehensive analysis of Potentially Serious Incidents (PSIs) in Alberta's energy industry from Q1 2019 to Q4 2024, aiming to identify trends, foster industry learning, and guide future prevention efforts. The data from Alberta Occupational Health and Safety (OH&S) and Energy Safety Canada (ESC), used in this report, excludes COVID-19-related incidents to maintain relevance and consistency.

Key Findings

PSI Reporting Trends:

Submissions have stabilized over the years, averaging around 75 incidents annually since 2020.

Incident Classifications:

The most frequently reported PSI types in 2024 include "struck by falling object", "contact or struck with object, tools, equipment", and "fall to lower level", the latter showing a notable 50 per cent increase.

Comparison with WCB Data:

PSI data reflects incidents involving significant hazardous energy, while WCB claims include broader injury types such as overexertion and bodily reactions.

Follow-Up Actions:

Administrative ("soft") controls remain the most common response, with engineering ("hard") controls underutilized across all years.

Focus Areas for 2025:

Exposure to Electrical Current: 70 per cent were repeat incidents, primarily involving overhead powerlines. 25 per cent cited Alternative Controls. Energy Isolation was the only applicable Life Saving Rule.

Caught-In Incidents: Mostly occurred during routine operations and involved mechanical, gravity, and motion

energy sources. 14 per cent involved repeat incidents and 40 per cent included Alternative Controls. Line of Fire was the most prevalent Life Saving Rule that applied to these PSIs.

Insights Impact Assessment:

Most PSIs scored low (3–4) on Novelty, Applicability, and Necessity for change, indicating reduced potential for industry-wide transformation without deliberate learning strategies beyond sharing the incidents.

Reflective Questions

1. What is different about 'repeat' PSIs and what does this mean for learning?
2. How can we be more deliberate about learning from incidents?
3. How can understanding the insights for each PSI influence the approach taken for industry learning?

Recommendations

- Increase use of **hard controls** to better mitigate high-energy hazards.
- Prioritize **repeat incidents** for deeper analysis and targeted industry interventions.
- Consider the **Insights Impact framework** or something similar, to identify PSIs with high learning potential for subsequent sharing with industry.
- Promote **alternative controls** where direct controls are not feasible, such as with overhead powerlines.

To support your continuous improvement journey, ESC offers the following resources:

[Powerline Safety Awareness Course](#), [Critical Work Management](#), [Life Saving Rules](#), [Safety Alert Submission](#).

Table of Contents

01 // Introduction	4
02 // Reporting Rates and Trends	4
03 // Incident Classifications	5
04 // Incident Follow-up Actions	7
05 // Focus Areas – Background and Methodology	8
06 // Focus Areas – Exposure to Electrical Current	10
07 // Focus Areas – Caught-In	11
08 // Focus Areas – Insights Impact	13
09 // Supplementary Statistics	16
Glossary	18
Resources	19
Disclaimers	19

01 // Introduction

This report presents a summary of PSI data from Alberta's energy industry, covering the period from Q1 2019 to Q4 2024. Its purpose is to highlight common trends and encourage broader conversations around industry prevention efforts. PSI data is received quarterly, with additional narrative analysis provided annually through specific data groupings requested from Alberta OH&S.

For this year's report, the data has been aligned with the calendar year to improve consistency and comparability, recognizing that many PSI submissions are received several months after the incidents occur. As with previous reports, COVID-19 data has been excluded, as it is no longer considered relevant to current industry trends.

According to Alberta OH&S, "a PSI is reportable when the incident had a likelihood of causing a serious injury or illness, and there is reasonable cause to believe that corrective action may need to be taken to prevent recurrence."

Employers report PSIs online and must include a description of the event, the number of people involved and/or injured, and any follow-up actions they implemented.

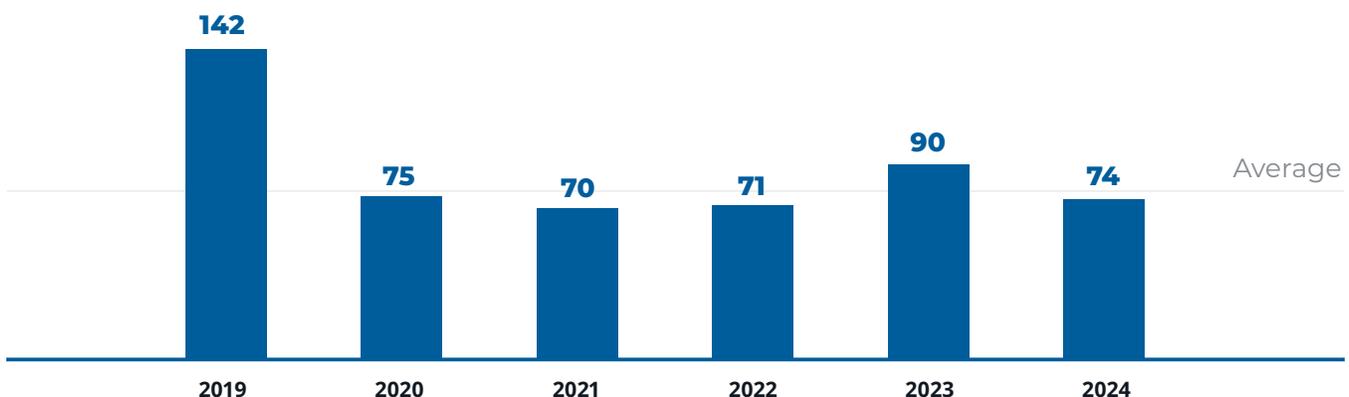
The definition of PSI was significantly revised at the end of 2018 by Alberta OH&S. Therefore, only data from 2019 onwards is included in this report.

A learning industry is one that **turns data into action**. Executive leadership plays a critical role in ensuring that insights from potentially serious incidents are not just acknowledged but **used to drive meaningful change** across operations. This combined with critical control verification ensures that there are no repeat PSIs and no actual serious incidents in the future.

02 // Reporting Rates and Trends

PSI reports have reached a steady state from year to year, **averaging around 75 PSI reports per year since 2020**.

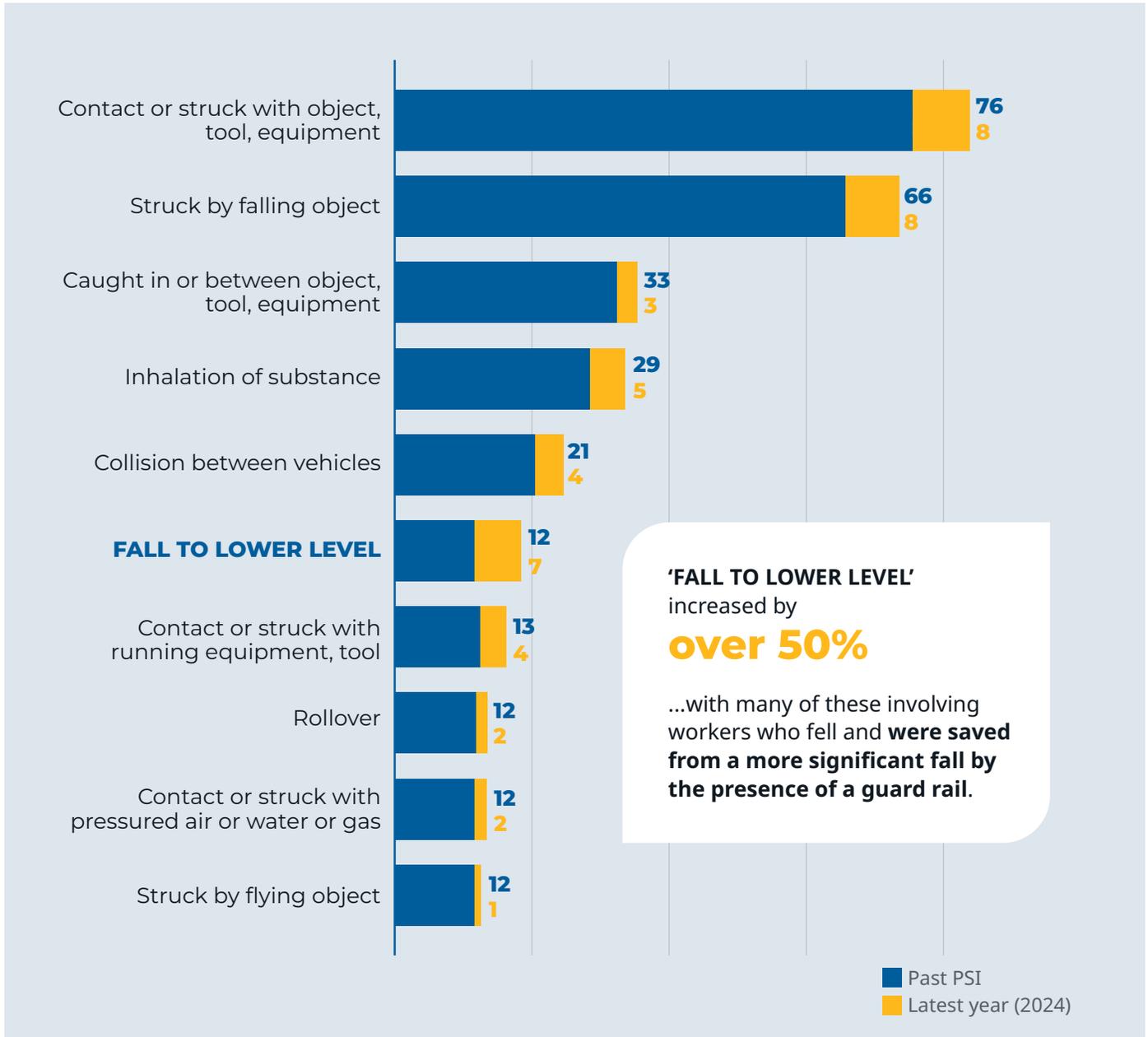
FIG 1. NUMBER OF PSI REPORTS



03 // Incident Classifications

The graph below illustrates the most commonly reported incident types among PSIs.

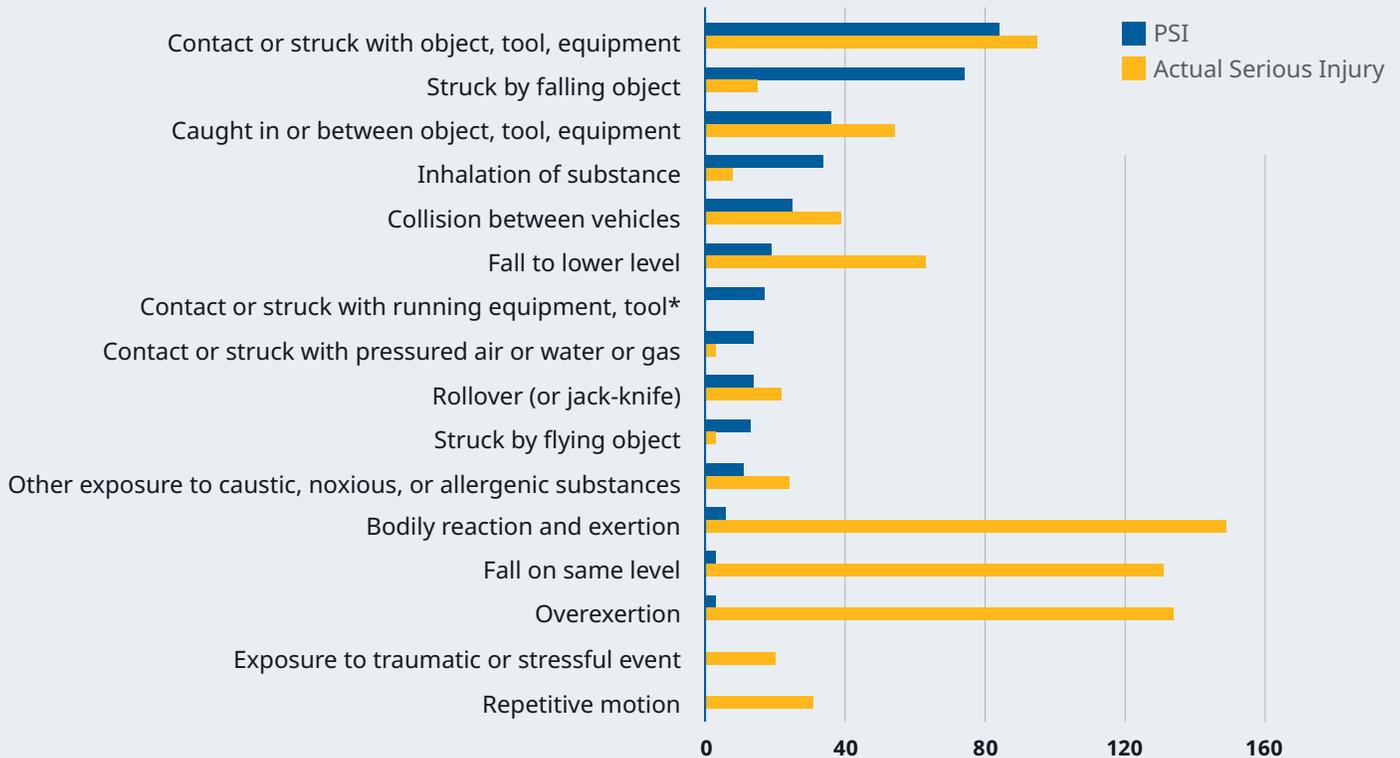
FIG 2. PSI INCIDENTS BY TYPE



03 // Incident Classifications cont.

This graph compares the most common types of PSIs with serious incident types reported in the Workers' Compensation Board (WCB) data (i.e., actual serious injuries) while several categories are highly represented in both datasets, others—such as Bodily reaction, Overexertion and Fall on the same level—appear less frequently in PSI data. This discrepancy exists because PSIs are associated with the presence of significant hazardous energy, whereas WCB data is influenced by incidents resulting in 50+ days of lost time or fatalities.

FIG 3. TOP PSI AND ACTUAL SERIOUS INJURY TYPES



* "Contact or struck with running equipment, tool" has no similar category in the WCB data

For every PSI reported, there are approximately 2 actual serious injury WCB claims (50+ days lost or fatality). When excluding Repetitive motion, Exposure to traumatic or stressful event, Overexertion, Fall on same level and Bodily reaction and exertion, the ratio is almost 1:1.

2 SERIOUS INJURY CLAIMS

1 PSI REPORTED

Reflective Question

How many close calls occur before someone is seriously injured?

04 // Incident Follow-up Actions

This graph indicates that administrative controls are the most commonly used type of control.

These are considered “soft” controls, in contrast to engineering controls, which are typically referred to as “hard” controls.

FIG 4. FOLLOW-UP ACTIONS

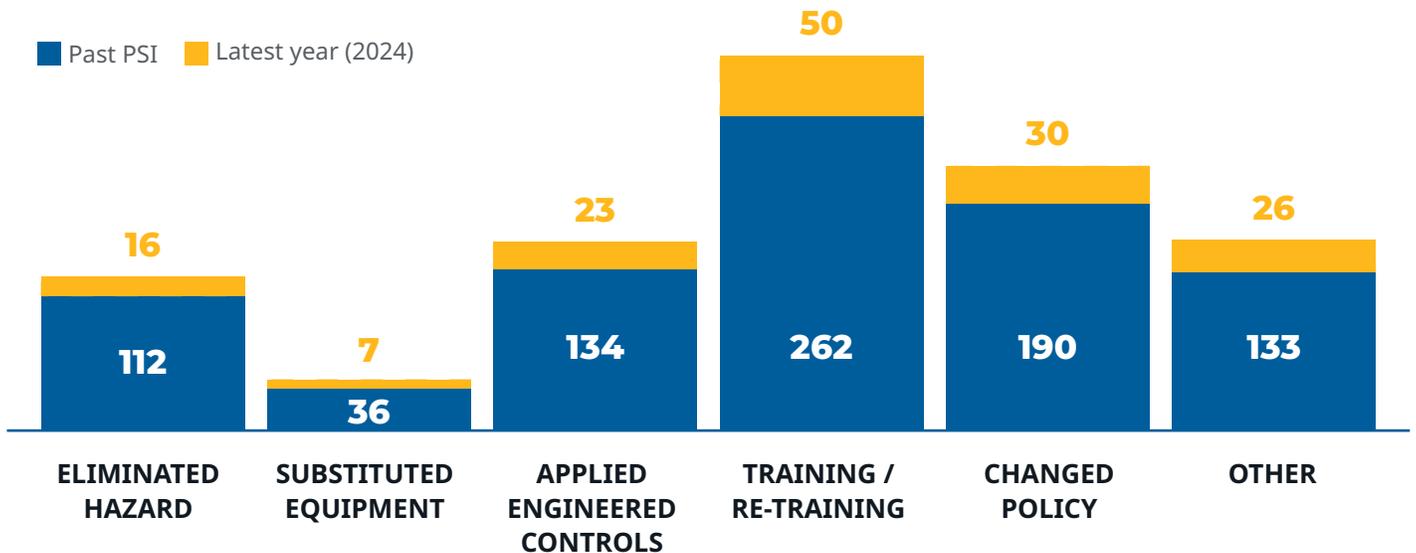
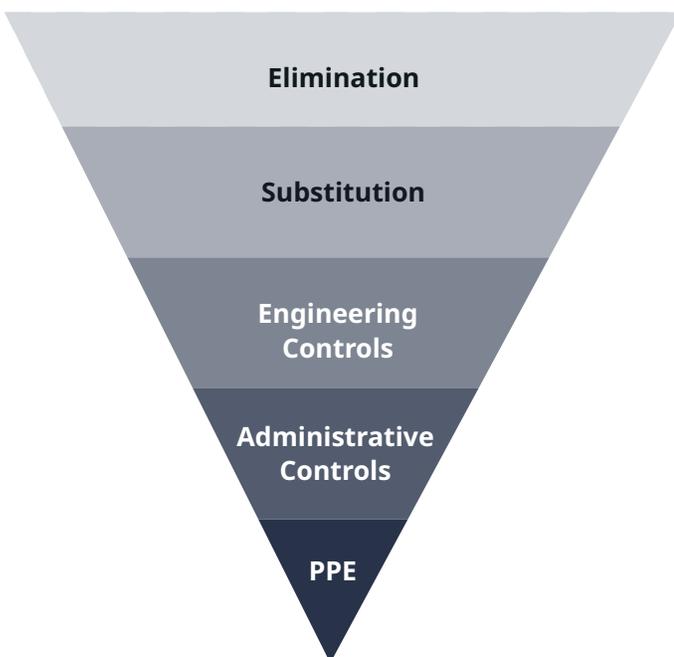


FIG 5. HIERARCHY OF CONTROLS



True safety leadership means investing in controls that go beyond compliance—those that are effective even when human error occurs. It’s not just about having policies in place, but about **ensuring the right barriers are in the right place, at the right time**, to prevent serious harm.

05 // Focus Areas – Background and Methodology

For the 2025 Report, ESC requested narrative data for two categories of PSI data:

- Exposure to Electrical Current (28 incidents)
- Caught in or Between Object, Tool or Equipment (42 incidents), herein referred to as Caught-In

Background and Methodology

Three areas of new focus in this report are the presence of Repeat Incidents, Alternative Controls and an Insights Impact assessment framework.

Repeat Incidents are those that occurred two or more times in the same manner (equipment, environment, mechanism, etc.). A reduction in repeat incidents is one indicator of a learning industry.

Reflective Question

What does it mean when repeat incidents occur in your company?

Alternative Controls is a concept from the [Construction Safety Research Alliance](#), specifically designed to mitigate human error for situations where Direct Controls are not feasible. A Direct Control is one that specifically targets the high-energy source and mitigates exposure when installed, verified, and used properly and is effective when someone makes a mistake. Where a follow-up action met at least one of the three categories—Physical Obstacle, Dedicated Monitoring and Visual Reminder—it was counted as an Alternative Control, provided a Direct Control was not feasible.

When a **Direct Control** is not feasible, there must be **at least 2 Alternative Controls**, from at least 2 or more of the following categories:



PHYSICAL OBSTACLE

An obstruction that blocks the path towards the hazard.



DEDICATED MONITORING

Devoted and continuous attention to the hazard.



VISUAL REMINDER

A visible warning of the presence of the hazard.

Source: [Construction Safety Research Alliance](#)

05 // Focus Areas – Background and Methodology cont.

Industry can learn from all PSIs; however, not all PSIs provide the same opportunity for insights and industry impact. This impact is assessed at low, medium or high levels across three factors: Novelty, Applicability, and Necessity for change.

These are combined into a score ranging from a low of 3 to a high of 9. A ‘novel’ PSI is one where the incident causation or hazard is not readily known or controlled. A PSI with wide ‘applicability’ applies broadly to large parts or the entire industry. A PSI that has a high ‘necessity for change’ challenges current thinking, including assumptions around “work as imagined vs work as done,” and how work is planned, supervised and controlled.

The categories for how these were assessed are provided below:

TABLE 1 – INSIGHT IMPACT CATEGORIES

	NOVELTY How new or unexpected the PSI is	APPLICABILITY How broadly the learning transfers across industry	NECESSITY FOR CHANGE How much it challenges accepted beliefs or “the way we do things”
Low	Similar incidents are well-documented; hazards and controls are already known; incident mostly reinforces existing knowledge.	Narrow scope; relevant only to a very specific process, technology, or local condition such as one sector or one group of workers.	Aligns with existing mental models; lessons confirm current best practices (no rethink needed).
Medium	Some unique aspects or combinations of factors, but generally aligns with known risks; requires refinement of current practices.	Lessons apply across numerous sectors, but not all (e.g., drilling, construction, confined space work).	Some tension with accepted practices; requires local adaptation of work methods or risk perceptions.
High	Entirely new mechanism, failure mode, or context not previously recognized; creates “unknown unknowns.” ** High-novelty incidents force industry to add new hazard categories, rethink monitoring, or update risk frameworks.	Universally relevant; learnings apply across industries, sectors, and even geographies (e.g., decision-making under uncertainty, fatigue, contractor coordination). ** High-applicability incidents justify industry-wide alerts, standards, and training modules.	Strong contradiction to assumptions, “work as imagined vs. work as done” gap exposed; demands industry rethink or paradigm shift in how work is planned, supervised, or controlled. ** High-necessity for change incidents are the most powerful for culture change and advancing safety thinking.

This more nuanced understanding can help industry advocate internally and share externally through ESC safety alerts. It also supports ESC in mining PSI data to prioritize industry outreach for safety alert submissions. Where scores are low and repeat incidents are frequent, a more deliberate approach is likely needed to drive meaningful change.

Reflective Question

What types of incidents have historically resulted in meaningful change in your company?

06 // Focus Areas – Exposure to Electrical Current

Half of the electrical current exposures involved overhead powerlines, with the remainder involving power cords or cables, junction boxes and other miscellaneous sources. The activities at the time of the electrical current exposure included maintenance, mechanical lift operation, transport and track hoe operation.

FIG 6. ELECTRICAL SOURCES

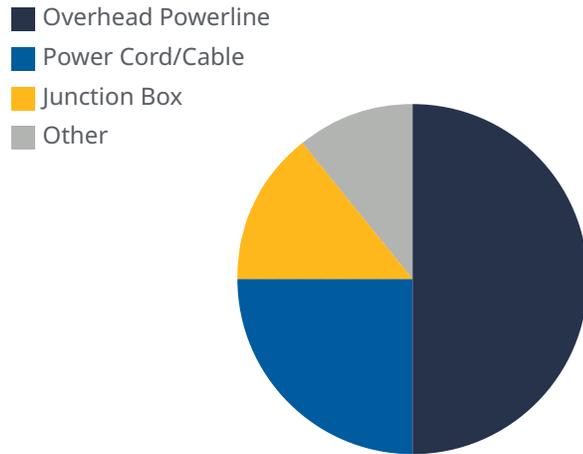
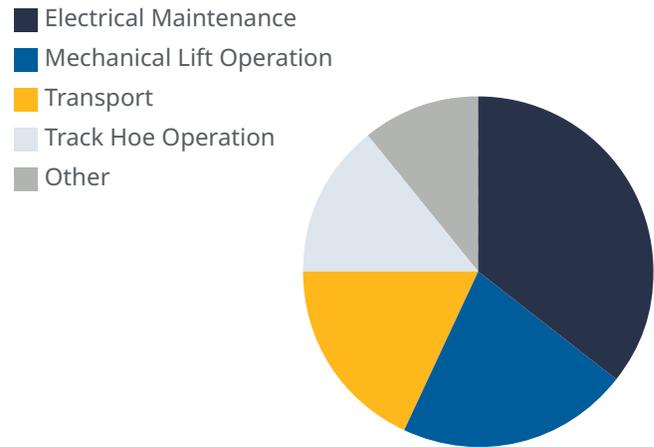


FIG 7. ACTIVITY TYPE DURING ELECTRICAL INCIDENT

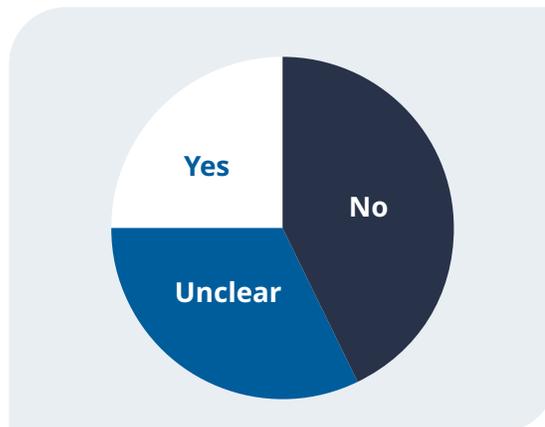


Life Saving Rules (LSR) applied in approximately one-third of the incidents, with Energy Isolation being the only LSR identified. The rule details that applied were confirmation of isolation and verification of zero energy.

FIG 8. LSR APPLICABILITY - EXPOSURE TO ELECTRICAL CURRENT



FIG 9. ALTERNATIVE CONTROLS CITED IN RECOMMENDATIONS - EXPOSURE TO ELECTRICAL CURRENT



70%

of the Exposure to Electrical Current PSIs were **repeat incidents**.

Alternative Controls were indicated (at least once) in 25 per cent of the follow-up actions. It is worth noting that the absence of these types of controls in the submission may not necessarily indicate that they were not present in the workplace. Industry is asked to reflect on these controls, especially in situation where Direct Controls are not feasible, as is often the case with overhead powerlines. It is considered industry best practice to implement flag poles (physical barrier), spotters (dedicated monitoring) and signage (visual reminder) when working near overhead powerlines.

07 // Focus Areas – Caught-In

Caught-In PSIs involved numerous equipment types, too numerous to list individually. However, the PSIs were categorized based on Operating Condition. The most significant category was “routine”, representing about one-third of the PSIs. The remaining two-thirds were distributed across “maintenance”, “mobilization and demobilisation”, “construction” and “other”.

FIG 10. OPERATING CONDITION - CAUGHT-IN

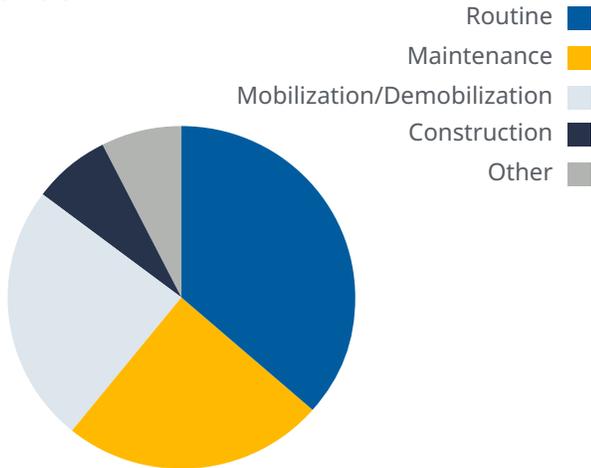
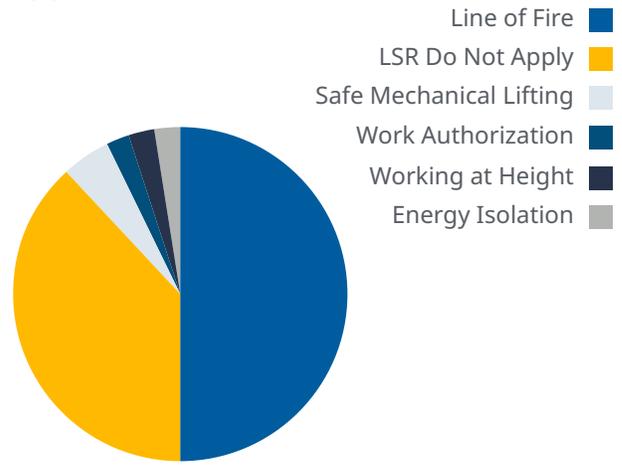


FIG 11. LSR APPLICABILITY - CAUGHT-IN

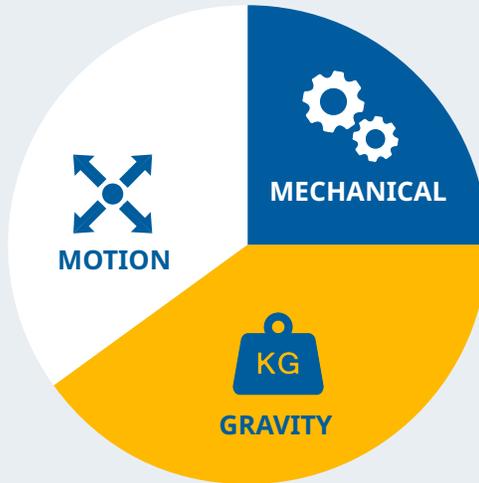


Life Saving Rules applied to approximately two-thirds of the Caught-In PSIs, with the vast majority related to Line of Fire. These incidents were primarily dominated by moving and dropped objects.

07 // Focus Areas – Caught-In cont.

FIG 12. DISTRIBUTION OF ENERGY TYPES - "CAUGHT IN"

The Caught-In PSIs involved hazardous energy types including **gravity, motion and mechanical**.



Most of these Caught-In incidents were unique, with only

14%

of them being repeat occurrences within the dataset.

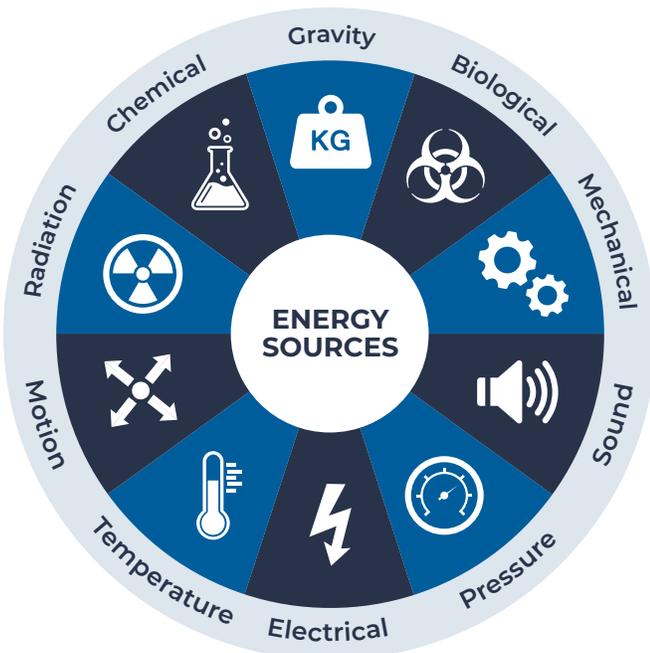
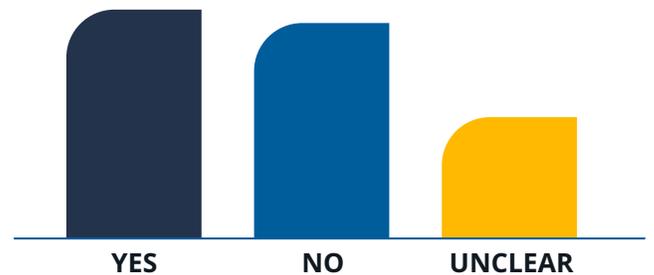


FIG 13. ALTERNATIVE CONTROLS CITED IN RECOMMENDATIONS - CAUGHT-IN



Alternative Controls were cited in

40%

of the PSIs.

08 // Focus Areas – Insights Impact

Insights Impact Assessment Scores

The majority of PSIs across both Exposure to Electric Current and Caught-In had low levels of Novelty and Necessity for change, indicating that these are known hazards with known prevention strategies and controls. Only a few PSIs were at a high level for Novelty and Necessity for change, which is not unexpected given the maturity of the energy industry. Applicability was noticeably different, with more PSIs falling into the medium level, suggesting they apply to a broader range of the industry.

FIG 14. INSIGHTS IMPACT SCORES ACROSS THREE FACTORS AT THREE LEVELS

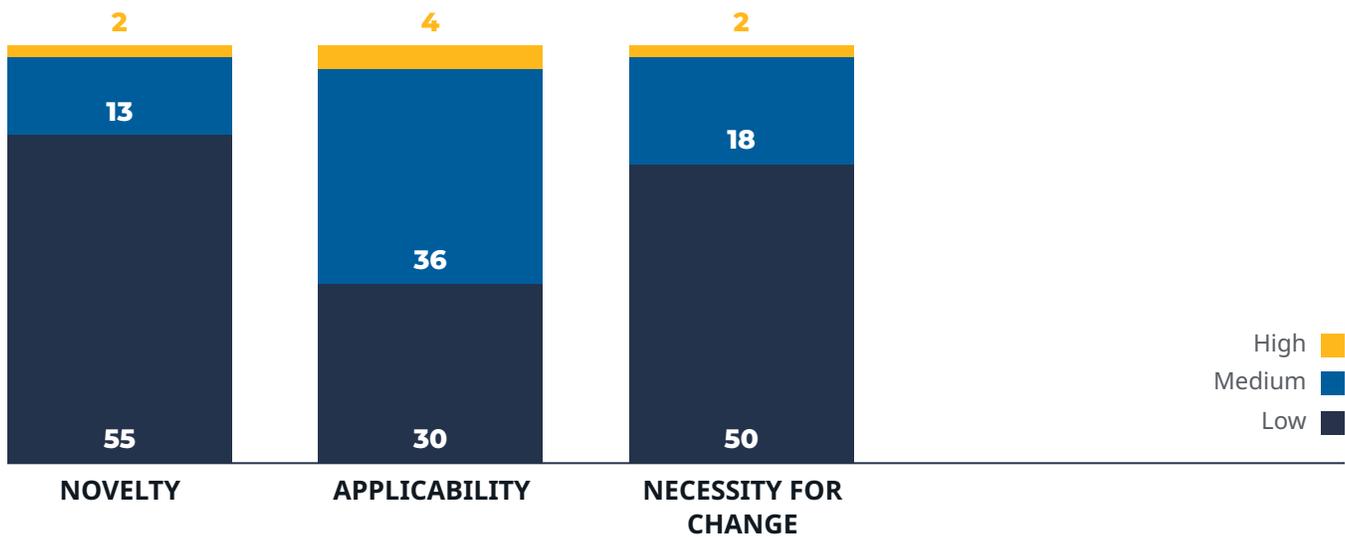


FIG 15. INSIGHTS IMPACT SCORES ACROSS THREE FACTORS AT THREE LEVELS FOR EXPOSURE TO ELECTRICAL CURRENT

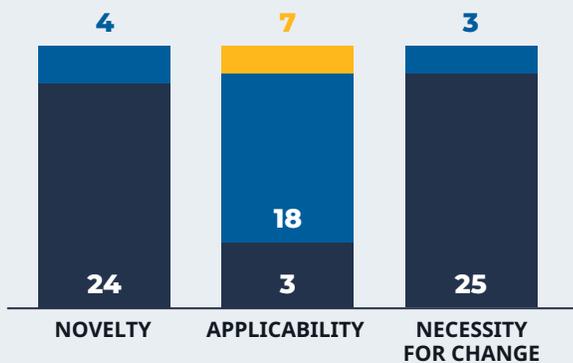
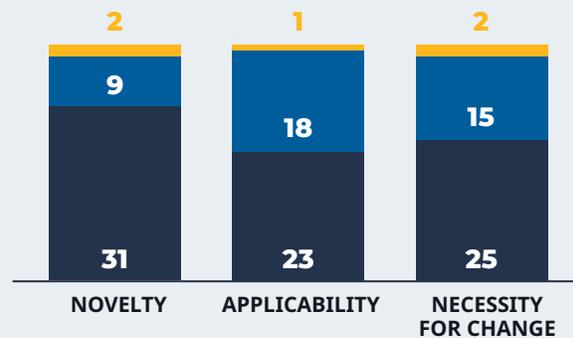


FIG 16. INSIGHTS IMPACT SCORES ACROSS THREE FACTORS AT THREE LEVELS FOR CAUGHT-IN



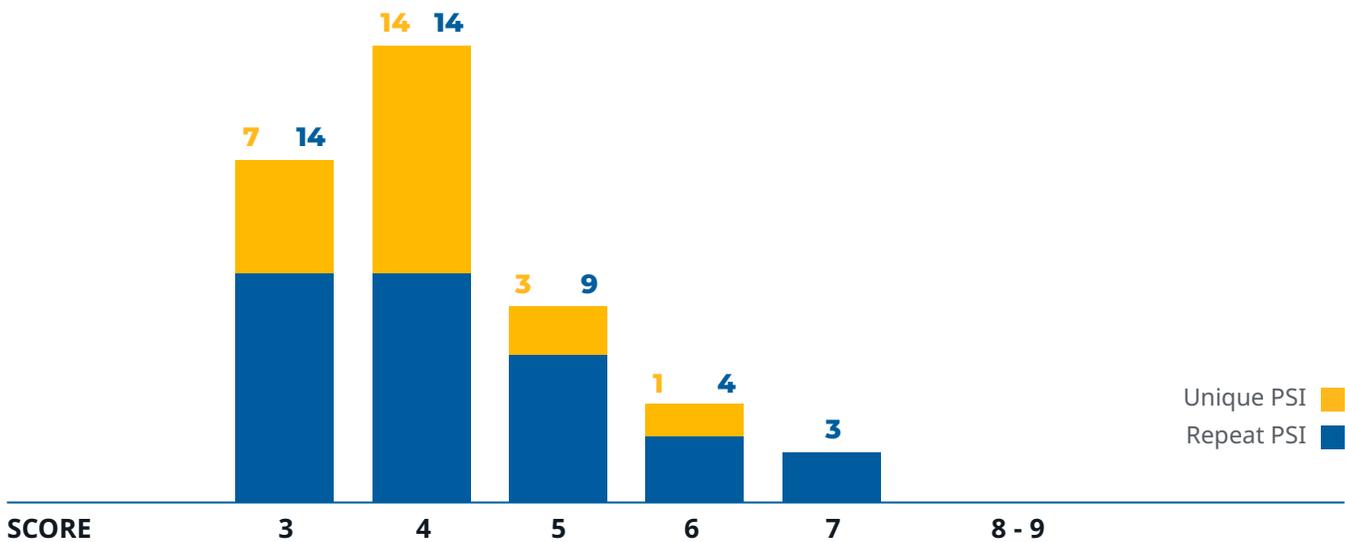
High ■ Medium ■ Low ■

08 // Focus Areas – Insights Impact cont.

The average Insights Impact Score was slightly greater than 4, indicating that PSIs which are unique, have wide applicability across industry and Necessity for change are limited within these two data categories. Most repeat incidents were associated with scores of 3 and 4. For example, all the overhead powerline strikes had a score of 4, with one exception. This suggests that these PSIs would likely have less ability to result in industry-wide change simply by knowing about the incident. A more deliberate learning strategy for industry is needed with low score PSIs, especially with PSIs that also are repeat incidents.

Industry is asked to reflect on their PSIs and consider using the Insights Impact assessment framework or a similar approach, when determining what can be shared with industry through safety alerts.

FIG 17. DISTRIBUTION OF INSIGHTS IMPACT SCORES ACROSS EXPOSURE TO ELECTRICAL CURRENT AND CAUGHT-IN PSI SUBMISSIONS



The Insights Impact scores are noticeably different when Exposure to Electric Current and Caught-In were viewed separately, with repeat incidents included. The Exposure to Electric Current PSIs were dominated by scores of 4, the majority of which were repeat incidents. These types of PSIs will require deliberate focus by industry to drive meaningful change.

08 // Focus Areas – Insights Impact cont.

FIG 18. DISTRIBUTION OF INSIGHTS IMPACT SCORES ACROSS EXPOSURE TO ELECTRICAL CURRENT PSI SUBMISSIONS

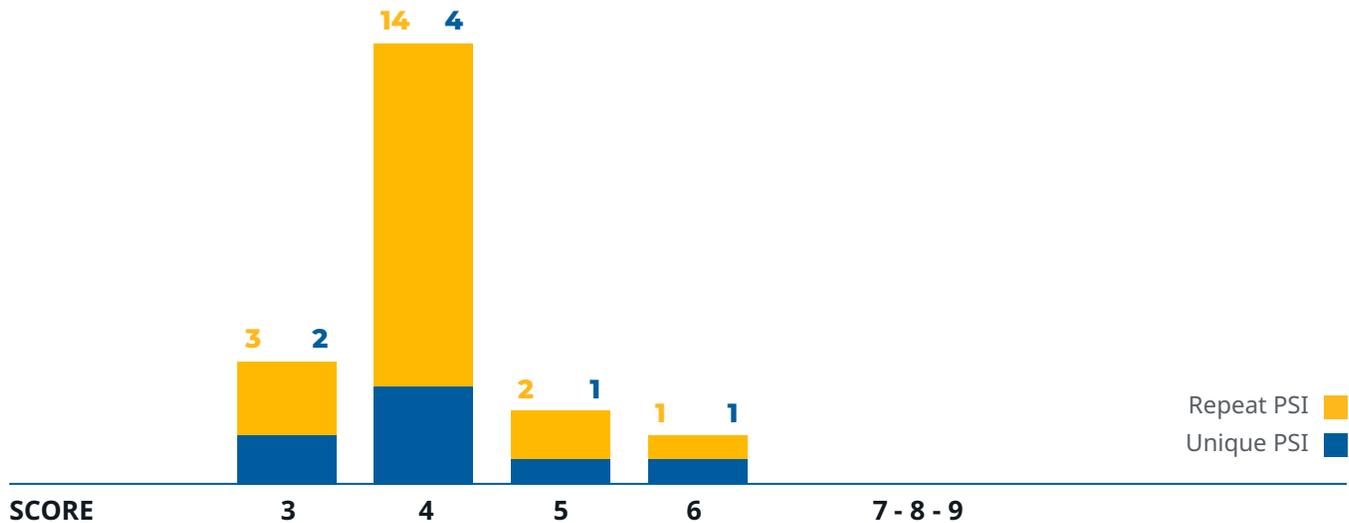
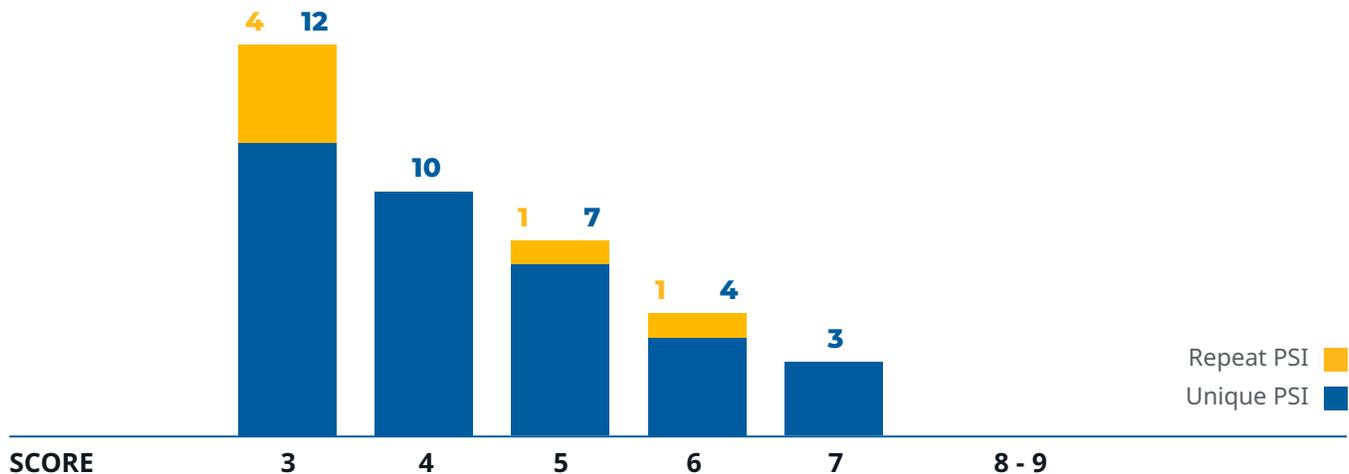


FIG 19. DISTRIBUTION OF INSIGHTS IMPACT SCORES ACROSS CAUGHT-IN PSI SUBMISSIONS



Reflective Questions

1. What is different about 'repeat' PSIs and what does this mean for industry learning?
2. How can industry be more deliberate in learning from incidents?
3. How can understanding the insights for each PSI influence the approach taken for industry learning?

09 // Supplementary Statistics

FIG 20. SOURCES OF THE TOP FIVE INCIDENT TYPES (INCIDENT COUNT)

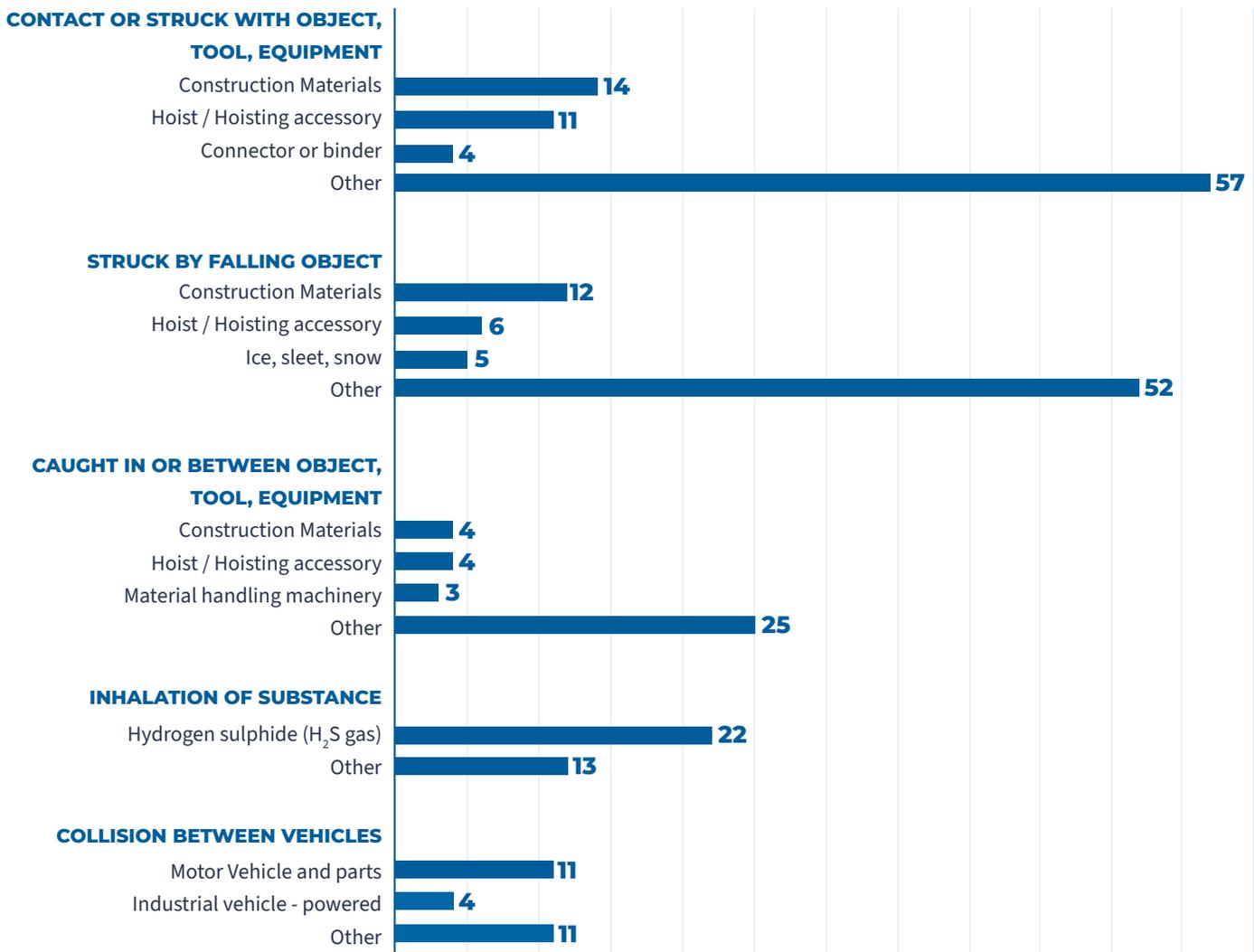
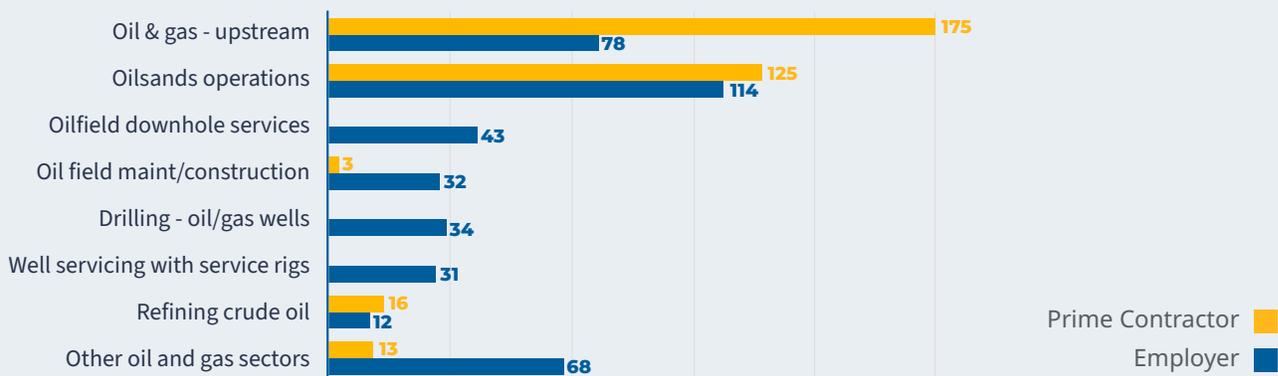


FIG 21. REPORTS BY INDUSTRY SECTOR



09 // Supplementary Statistics cont.

Demographics

For some PSIs, a person suffered actual injuries in addition to the potential for serious injury. The following is demographic information about those injured individuals.

FIG 22. INJURED PERSON OCCUPATIONS

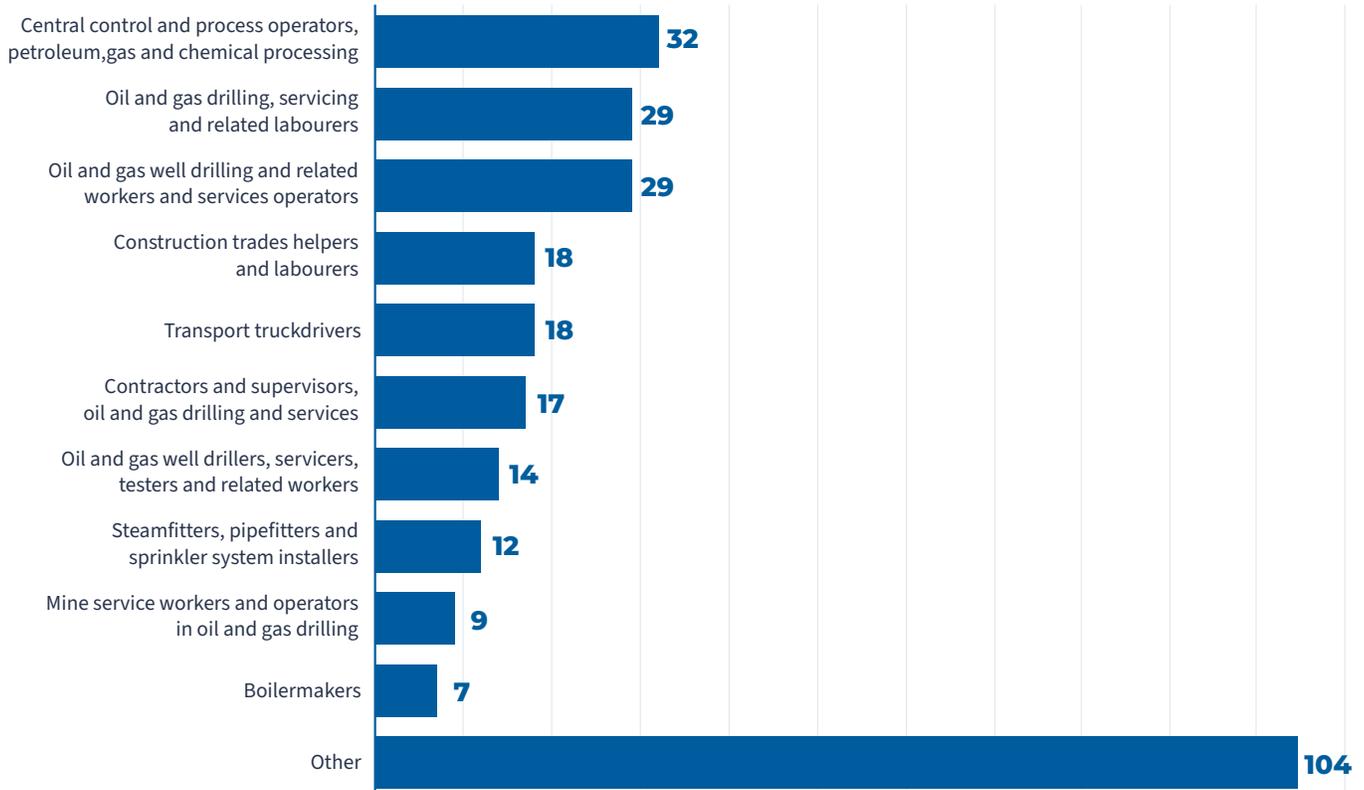
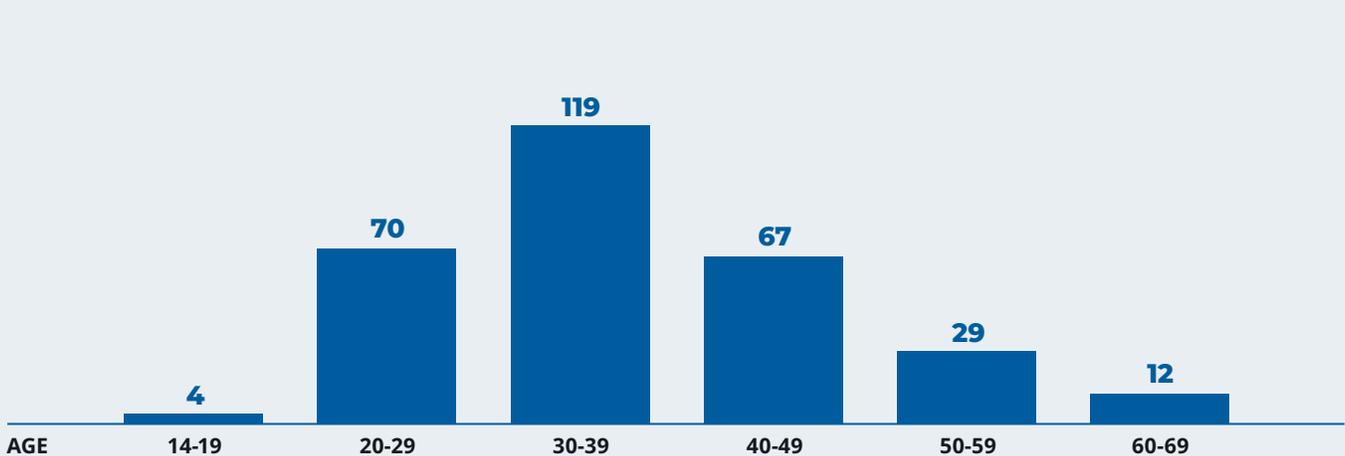


FIG 23. INJURED PERSON AGE GROUPS



Glossary

ALTERNATIVE CONTROL

An Alternative Control, a [Construction Safety Research Alliance](#) concept, is a “system of complimentary controls that reduce the likelihood of human error”. They are for situations where Direct Controls are not feasible and there must be two controls from at least two or more of these three categories: Physical Obstacle, Dedicated Monitoring and Visual Reminder.

DIRECT CONTROL

A Direct Control, a [Construction Safety Research Alliance](#) concept, is a control that specifically targets the high energy source and mitigates exposure to that energy when installed, verified, and used properly and is effective when someone makes a mistake.

INSIGHTS IMPACT SCORE

This is an approach to assessing the ability of a PSI to have an impact. This impact is assessed at low, medium or high levels across three factors: novelty, applicability and necessity for change.

REPEAT INCIDENT

Repeat incidents are those that occurred two or more times in the same manner (equipment, environment, mechanism, etc.).

INDUSTRY SECTOR

Groupings of employers who have similar businesses and risks as one another. Defined by WCB Alberta. This report contains data from all Alberta oil and gas industry sectors.

PERSON

A PSI is not limited to workers. If it involves someone who is not a worker, it is still considered a PSI if it resulted from work activities at the work site or could have happened to a worker.

POTENTIALLY SERIOUS INCIDENT (PSI)

A PSI is reportable when the incident had a likelihood of causing a serious injury or illness, and there is reasonable cause to believe that corrective action may need to be taken to prevent recurrence.

WORKERS' COMPENSATION BOARD (WCB)

The WCB provides compensation to workers who are injured on the job, and help them recover and return to work.

Resources

[Energy Safety Canada PSI Program](#)

[Energy Safety Canada PSI Guideline](#)

[Potentially serious incident reporting: legislation updates](#)

[List of oil and gas industry sectors](#)

[Careers in Energy Labour Market Reports](#)

[Construction Safety Research Alliance](#)

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