ENERGY SAFETY CANADA

Potentially Serious Incidents Annual Report

2019 - 2025 Data

SEPTEMBER 2026

Executive Summary

This report presents Potentially Serious Incident (PSI) insights on 2019-2025 data from Alberta's energy industry. Data has been aligned with the calendar year in which the incident occurred to improve consistency and comparability, recognizing that many PSI submissions are received months after an incident occurs. COVID-19 data has been excluded.

By the Numbers

81%

of PSIs involved energy equal to or greater than 1,500 Joules

High-energy events continue to dominate PSI reporting and are consistent with serious injury and fatality potential.

80%

of PSIs involved Gravity, Motion, or Chemical energy

Three energy sources account for most reported high-potential events.

43%

of PSIs identified Human Performance as the primary proximal cause

Human Performance should be viewed as an opportunity to understand the systems and conditions that influence work, not worker blame.

Key Insights

High-energy exposure remains common.

More than three-quarters of PSIs involved energy levels associated with serious injury potential.

This suggests organizations continue to identify and report meaningful high-potential events.

Opportunity: Build prevention strategies around energy exposure, direct controls, and verification.

Motion Energy is emerging as a critical risk area.

Motion Energy:

- Represents over one-quarter of PSIs
- Dominates repeat incidents
- Is strongly associated with Human Performance factors

Examples include:

- Vehicle interactions
- Mobile equipment incidents
- Runaway equipment
- Line-of-fire events

Decision Point: Should Motion Energy become a dedicated focus area for industry?

Human Performance remains the dominant proximal cause.

Rather than focusing on individual actions, this finding invites examination of:

- Work design
- Procedures
- Supervision
- Communication
- Control effectiveness

Insight: The greatest opportunity may be improving the systems that shape performance.

Executive Summary cont.

By the Numbers

1 in 3

PSIs were repeat incidents

Similar incidents continue to reoccur across multiple organizations, highlighting opportunities for industry-wide learning.

34%

of PSIs indicated Critical Control Verification

Verification activities remain an important opportunity for strengthening SIF prevention efforts.

20%

of PSIs were Process Safety incidents

Preventing serious injuries and fatalities requires both personal safety and process safety perspectives.

Key Insights

The challenge is not finding hazards. It's preventing recurrence.

This suggests industry understands many of the risks it faces but continues to encounter similar events.

Opportunity: Focus on sharing effective controls and lessons learned across organizations.

Verification matters.

Critical Control Verification was identified in approximately one-third of PSIs and appeared less frequently when injuries occurred.

Opportunity:
Strengthen industry understanding of:

- Controls as Found
- Controls as Left
- Verification effectiveness
- Leadership visibility into control performance

Process Matters

Process Safety incidents included a larger component of Work Process proximal causes than compared to Personal Safety.

Opportunity: Understand the gap between work-as-imagined and work-as-done.

What This Means for Industry

The findings suggest that industry's greatest opportunity is not discovering new hazards, but learning collectively from hazards that are already well understood.

By focusing on:

- Repeat incidents
- Motion Energy exposures
- Direct Controls
- Critical Control verification
- Cross-company learning

Industry can strengthen its collective approach to serious injury and fatality prevention.

Preface

Varying perspectives on the categorization of serious injuries, across actual injury datasets, highlight the need for a common definition of Serious Injury — without consistency, organizations may classify similar events differently, making industry-wide learning more difficult.

To address this challenge, ESC convened an industry-led Serious Injury and Fatality (SIF) Task Group. After reviewing five recognized SIF models, the group has narrowed its focus to two leading approaches: Edison Electric Institute (EEI) and the International Association of Oil & Gas Producers (IOGP). These two models were tested across the 2023-2025 PSI data set. To learn more about SIF and access new resources to assist you on your SIF prevention journey, visit ESC's SIF Prevention website.

The two definitions of an actual serious injury did not materially impact the assessment of SIF Potential (SIF-P) in this dataset. This finding is also being tested in a SIF AI tool that will help inform a decision for industry.

Industry is encouraged to reflect on the following questions:

1. How closely coupled should serious injury be to fatality and what does this mean for the energy magnitude you use to build your SIF prevention program?
2. Do we consider the Body Part exposed when we think of SIF risk?
3. What is it about PSIs that involved an injury, that makes them less likely to include Critical Control verification activities?
4. Do verification metrics in company systems reflect "Controls as Found" or "Controls as Left"?

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01 // Introduction

This report presents a summary of PSI data from Alberta's energy industry, covering the period from Q1 2019 to Q4 2025. 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.

This report provides insights based on Potentially Serious Incident (PSI) data for 2019-2025. The analysis includes the full calendar year and excludes data generated as a result of COVID-19 to ensure consistency and relevance of reporting.

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 can 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.

The quality of our industry's learning is directly tied to the quality of our reporting.

Effective SIF-P programs require systems that remove barriers to transparent reporting, encourage the sharing of high-potential events, and focus on understanding how work is actually performed so we can **strengthen controls** before similar incidents are repeated.

02 // Reporting Rates and Trends

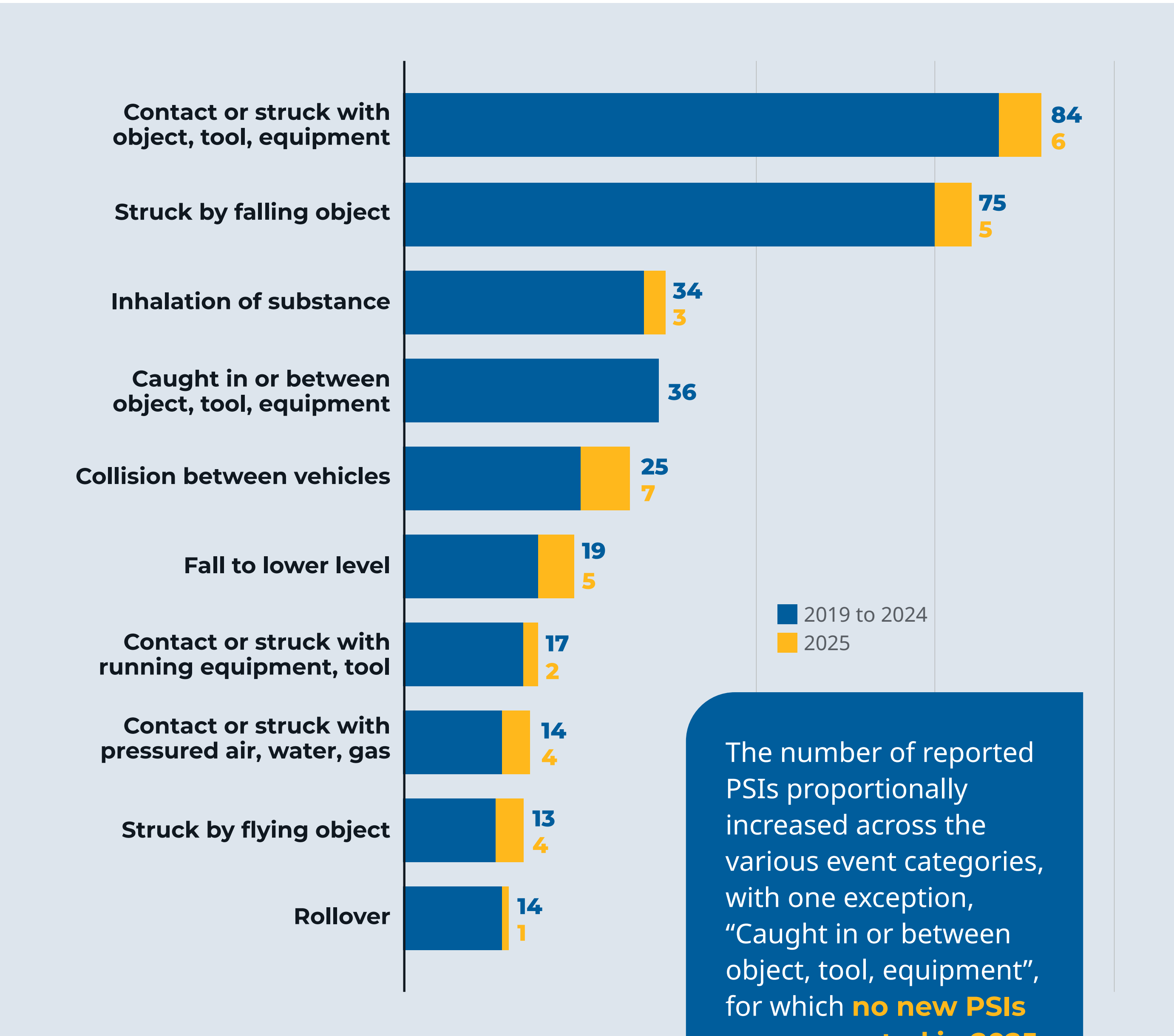
PSI reports have reached a steady state from year to year, **averaging around 80 PSI reports per year since 2020**.

FIG 1. PSI REPORTS (2019 TO 2025)

03 // Incident Classifications

The graph below illustrates the most reported PSI types.

FIG 2. PSIs BY TYPE (2019 TO 2025)

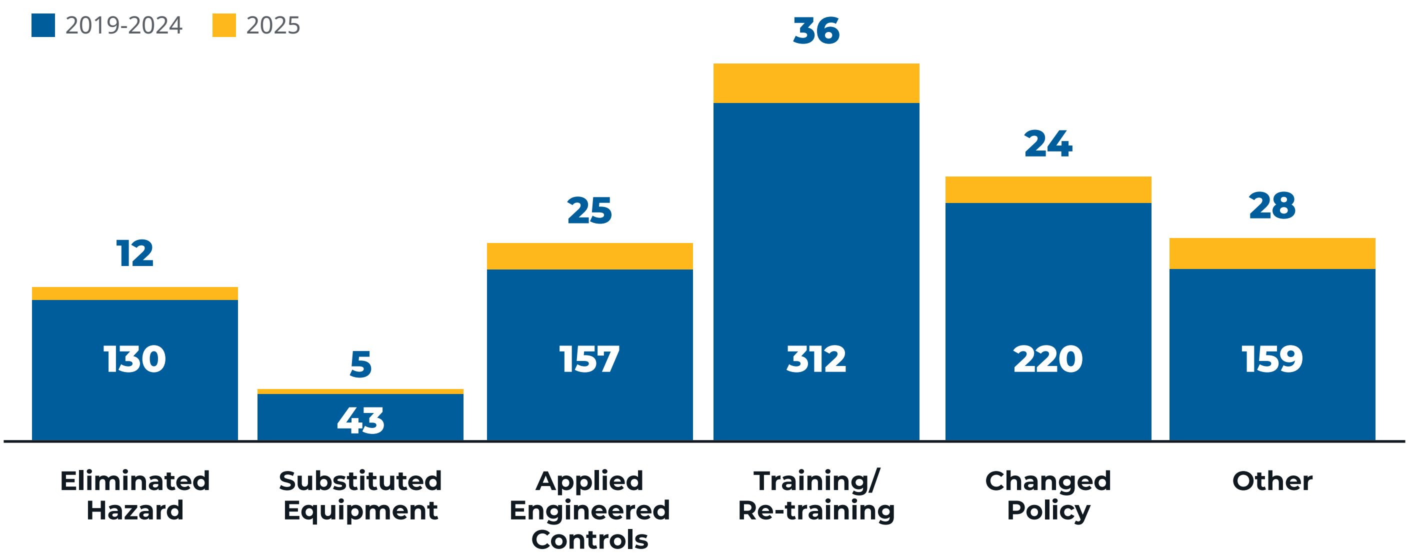


The number of reported PSIs proportionally increased across the various event categories, with one exception, “Caught in or between object, tool, equipment”, for which **no new PSIs were reported in 2025.**

04 // Incident Follow-up Actions

The administrative controls are the most used type of control. These are considered "soft" controls, in contrast to engineering controls, which are typically referred to as "hard" controls.

FIG 3. PSI FOLLOW-UP ACTIONS (2019 TO 2025)



HIERARCHY OF CONTROLS

05 // Focus Areas

For this report, ESC requested PSI narrative data (210 incidents) for the incidents that occurred during the period 2023 to 2025, from Alberta OH&S. PSIs are reported to Alberta OH&S once an incident has been determined to be a PSI, ensuring the quality of the data submissions and potential learnings.

What constitutes a serious injury? The Alberta Occupational Health and Safety Code define a serious injury as where a "worker has been or will be admitted to a hospital as a result of a workplace injury". However, what can we learn from various definitions of SIF. Figure #4 compares the top three types of PSIs to top three incident types in other data sets: AB OH&S Serious Incident Notifications, Alberta Workers' Compensation Board (WCB) data (defined by ESC as 50+ days of lost time) and WCB Fatality data.

Struck/Contact with Objects is a pervasive risk across all the data sets. Vehicle/Transportation and Chemical Substance Exposure are less frequent but higher fatal consequences (less recoverable). Bodily Reaction/Overexertion and Falls - Same Level are common and major contributors to lost time and cost but rarely lead to fatalities.

FIG 4. TOP THREE INCIDENTS BY TYPE ACROSS VARIOUS DATA SETS (2023 TO 2025)

PSI (AB OH&S)	AB OH&S SERIOUS INCIDENT NOTIFICATION	SERIOUS INCIDENTS (WCB 50+ DAYS)	FATALITIES
Struck/Contact with Objects	**Struck/Contact with Objects**	Bodily Reaction/ Overexertion	Vehicle/ Transportation
Vehicle/Transportation	Fire/Explosion	Falls - Same Level	Chemical/Substance Exposure
Chemical/Substance Exposure	Falls - Same Level	**Struck/Contact with Objects**	**Struck/Contact with Objects**

These differences reflect varying perspectives and highlight the need for a common definition of Serious Injury, and industry data, to improve the resolution of the picture. Without consistency, organizations may classify similar events differently, making industry-wide learning more difficult.

To address this challenge, ESC convened an industry-led SIF Task Group. After reviewing five recognized SIF models, the group has narrowed its focus to two leading approaches: Edison Electric Institute (EEI) and the International Association of Oil & Gas Producers (IOGP). These two models were tested across the 2023-2025 PSI narrative data. To learn more about SIF and access new resources to assist you on your SIF journey, visit ESC's SIF Prevention website.

Background and Methodology

New to this report are insights into SIF Exposure and SIF Capacity, Hazardous Energy, Body Parts, Proximal Cause Type, Energy Contact and Critical Control Verification. These new areas are coupled with previous areas of Energy Type, Safety Incident Type ('personal' versus 'process safety') and Repeat Incidents.

SIF Exposure and SIF Capacity

SIF Exposure occurs when a person is exposed to a work situation where there is potential for a SIF incident, but no release of energy has taken place. These often involve Life Saving Rules, such as a worker positioned under a suspended load or not wearing fall protection in close proximity to an unprotected elevated edge.

SIF Capacity occurs when a release of hazardous energy has occurred, but a direct control was present to target and mitigate the hazardous energy and not be susceptible to human error. SIF Capacity is especially important to prevent industry reccurrence by learning from what others have learned. For example, a rock impacts an excavator cab but is prevented from penetrating the window with a metal cage.

Hazardous Energy

The graphic below (Figure #5) from the Edison Electric Institute's Safety Classification and Learning Model (EEI SCL Model) details the various components of a High-Energy incident.

FIG 5. COMPONENTS OF HIGH ENERGY INCIDENT DEFINITION

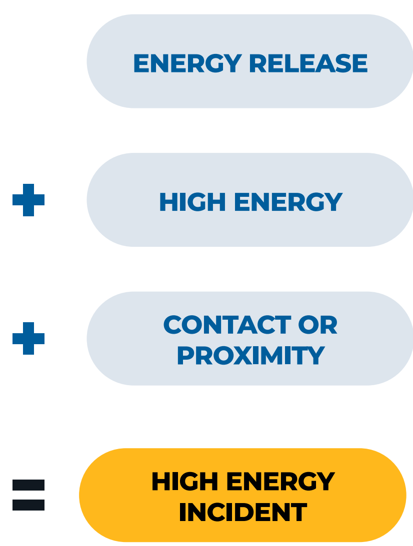
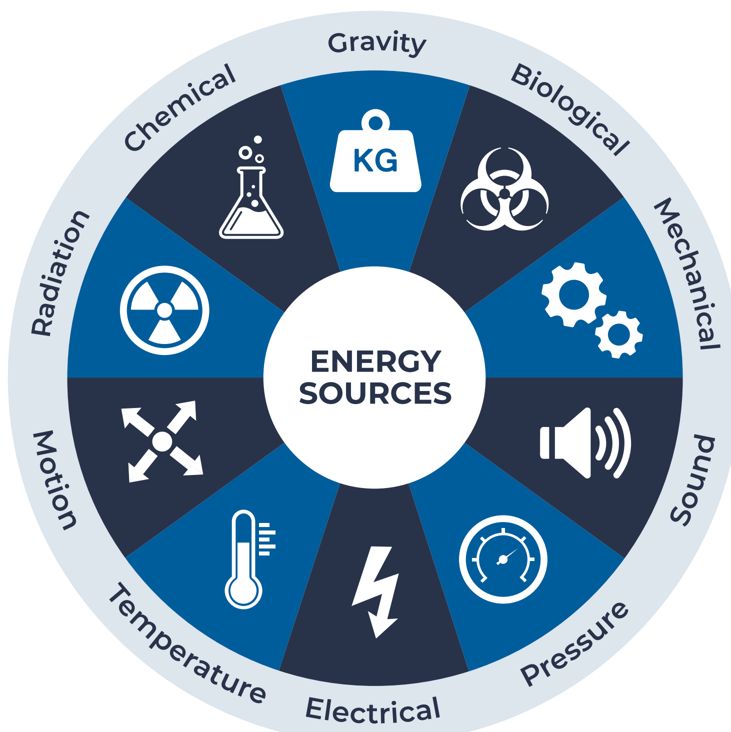


FIG 6. ENERGY WHEEL

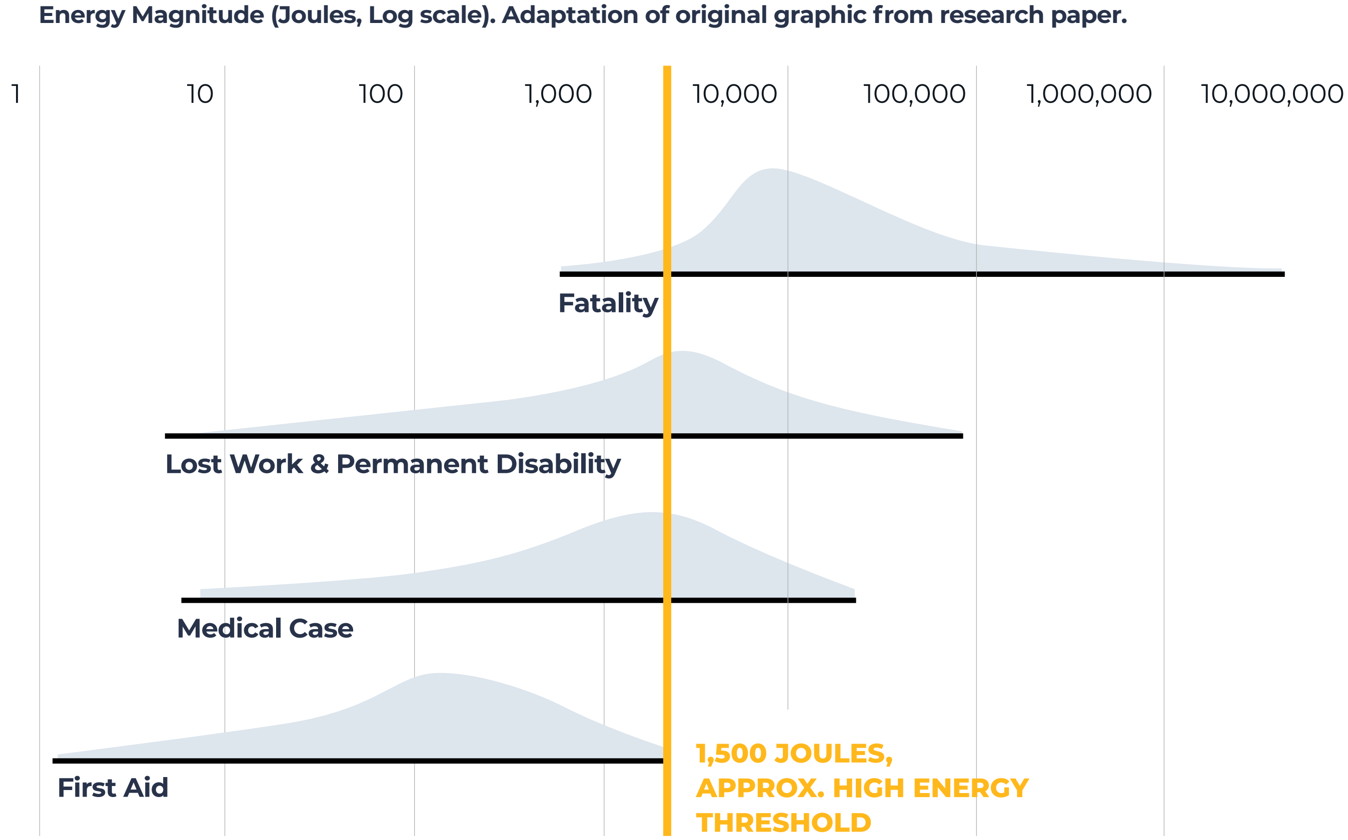


To better understand the Energy component of PSIs, energy was grouped into the 10 energy types identified in the [Energy Wheel](#) (Figure #6).

PSIs were also analyzed to the magnitude of hazardous energy. Energy magnitude was grouped into <100 Joules (First Aid), <500 Joules (Medical Treatment), <750 Joules (Restricted Duty) and equal to or greater than 1,500 Joules (Days Away from Work) based on the EEI Severity Based Lagging Indicator. This delineation is intended to better understand potential differences between the energy that creates SIF compared to less serious injuries as research by Dr. Matthew Hallowell and others have identified as indicated below in Figure #7.

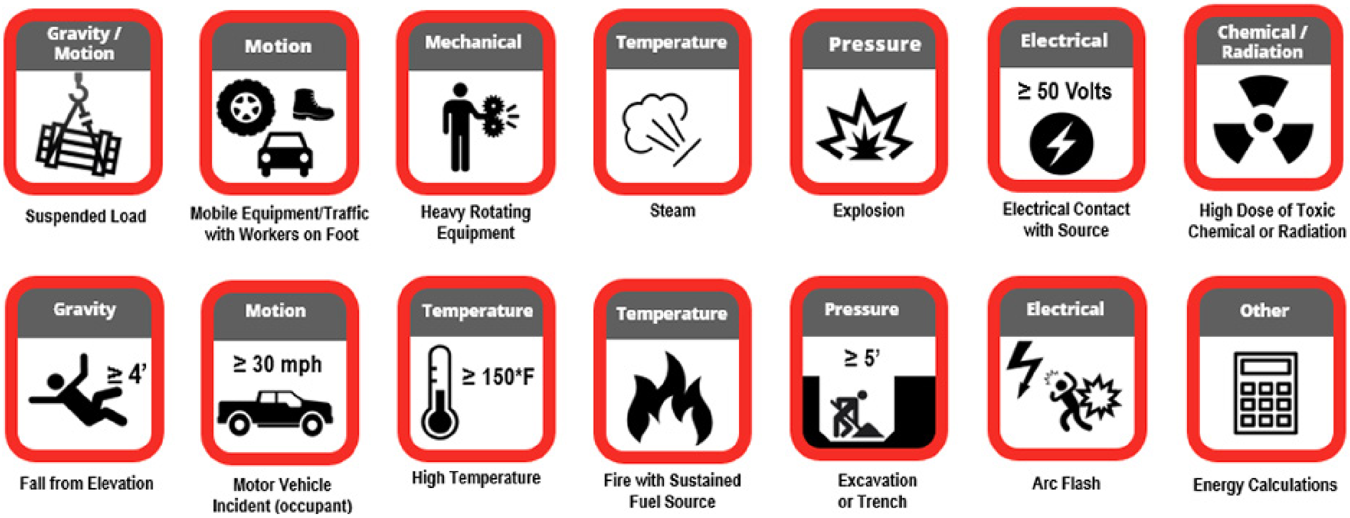
FIG 7. DISTRIBUTIONS OF ENERGY MAGNITUDE WITH RESPECT TO INJURY SEVERITY

Energy Magnitude (Joules, Log scale). Adaptation of original graphic from research paper.



To facilitate this energy magnitude estimates the following icons (Figure #8) were used with supportive materials from EEI SCL Model in conjunction with energy calculators.

FIG 8. HIGH ENERGY ICONS (EEI SCL MODEL)



Energy Contact

To better understand how close the energy came to people (Contact or Proximity) energy contact was classified into three categories: 'No Contact', 'Contact without Injury' and 'Contact with Injury'.

'No Contact' is where the energy did not come into contact with the worker. Often these are a function of proximity such as a worker being within 2 meters of the energy release. An example would be a dropped object.

'Contact without Injury' is where the worker was in contact with the hazardous energy, but for chance alone did not sustain an injury. An example would be where a worker was exposed to a chemical.

'Contact with Injury' is where an injury was sustained that was not serious but could have been. These are situations where the worker is in contact with the energy and an injury has occurred. An example would be a worker who sustains a cut on their arm.

An understanding of energy contact leads to the body parts exposed.

Body Parts

Different body parts are typically involved in fatalities compared to many serious injuries, as indicated in Figures #9 and #10 below. Fatalities typically involve multiple body parts, and the Head and Body Systems; whereas serious injuries, involve Lower and Upper Extremities and the Trunk.

FIG 9. AB WCB FATALITY INJURED BODY PARTS (2023-2025)

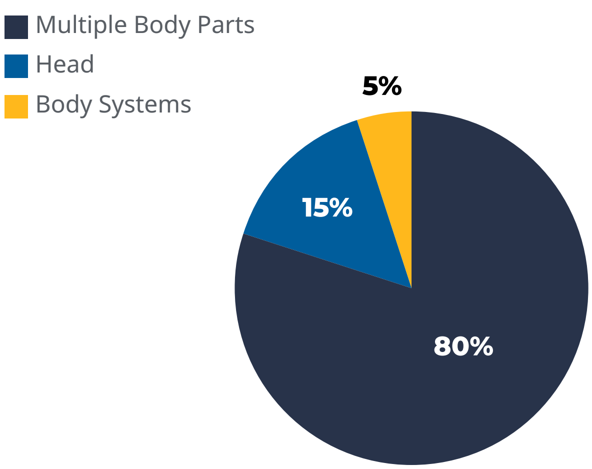
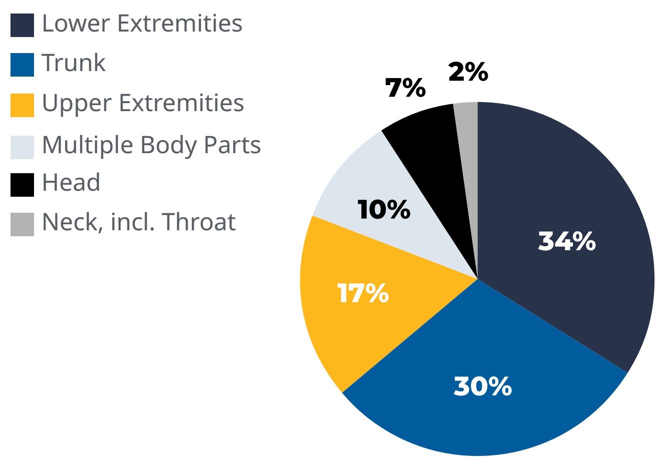


FIG 10. AB WCB LOST-TIME (50+ DAYS) INJURED BODY PARTS (2023-2025)



As such, body parts are classified into one of eight categories: Head, Neck, Trunk, Upper Extremities, Lower Extremities, Multiple Body Parts, Body Systems and Other Body Parts.

Proximal Cause

Proximal cause was broken down into four categories that best capture the most immediate contributing factor to occur with a PSI recognizing that with most serious injuries and fatalities there are numerous contributing factors. These categories are Work Process, Equipment, Human Performance and Environment and are adaptations from ESC's Process Safety Metrics and Event Reporting Guide.

'Work Process' incidents are primarily influenced by how the work was planned, organized, managed, communicated, authorized, or executed. This includes procedures, permits, risk assessments, supervision, coordination, change management, work sequencing, and operational decisions.

'Equipment' incidents are primarily influenced by the failure, malfunction, degradation, or unexpected performance of equipment, tools, machinery, structures, components, or engineered systems. This includes wear, defects, corrosion, design issues, maintenance deficiencies, and instrument failures.

'Human Performance' incidents are primarily influenced by human actions, decisions, or behaviors that contributed to an event, recognizing that performance is shaped by the conditions and systems within which work is performed.

'Environment' incidents are primarily influenced by physical or environmental conditions at the worksite. This includes weather, lighting, temperature, terrain, noise, visibility, wildlife, confined spaces, natural hazards, or other workplace conditions that affected the event.

Process Safety

Incidents involving an uncontrolled or unplanned loss of primary containment (LOPC) were classified as process safety in accordance with ESC's Process Safety Metrics and Event Reporting Guide while all other incidents were classified as personal safety.

Controls

Controls were grouped into "Hard" and "Soft" controls using the existing categories within the Alberta PSI submission portal. Hard controls include eliminated hazard, substituted equipment and engineering controls. Soft controls include changed policy, training, personal protective equipment and other. If a PSI had any one of the Hard Controls indicated above it was categorized as "Hard". As a result, this category structure means that the data will present differently than indicated in Section 4.0 of this report.

Hard Controls were further refined as being a Direct Control. A Direct Control is a Construction Safety Research Alliance (CSRA) concept and is defined as a control that specifically targets the hazardous energy, effectively mitigates exposure to high-energy when installed, verified and used properly and is effective when someone makes a mistake. Direct Controls were flagged when Hard Controls met this threshold as a follow-up action or when a Direct Control existed and it had failed and was repaired.

A **Direct Control** has 3 key requirements:

Specifically targeted to the High Energy source

Effectively mitigates exposure to High Energy when installed, verified, and used properly

Effective when someone makes a mistake

Repeat Incidents

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

Critical Control Verification

Verification that critical controls are in place to prevent reoccurrence is key to the management of SIF risk. "Verification Indicated" means that some type of ongoing verification was indicated in the PSI follow-up actions, such as inspections, leadership observations, audits, etc. It is worth noting that there is no requirement to indicate verification activities within Alberta Government's PSI data collection portal and therefore verification activities may be occurring that are not indicated.

Results

The results presented in this section reflect PSI insights from the 2023 to 2025 narrative data.

SIF Exposure and SIF Capacity

There were five SIF Exposure PSIs. These PSIs all involved Life Saving Rules or Actions infractions, specifically “Working at Height” and “Line of Fire”.

SIF Capacity was not represented in the PSI data set, as this would not meet the definition of a PSI. This is an indication of the need for a different data collection mechanism outside of regulatory reporting to help industry learn and improve. ESC is currently working with Industry in the development of Artificial Intelligence SIF tools.

Hazardous Energy

PSIs were dominated by Gravity, Motion and Chemical energy types, making up approximately 80% of the energy types within the data set.

FIG 11. DISTRIBUTION OF ENERGY TYPES ACROSS PSIs (2023-2025)

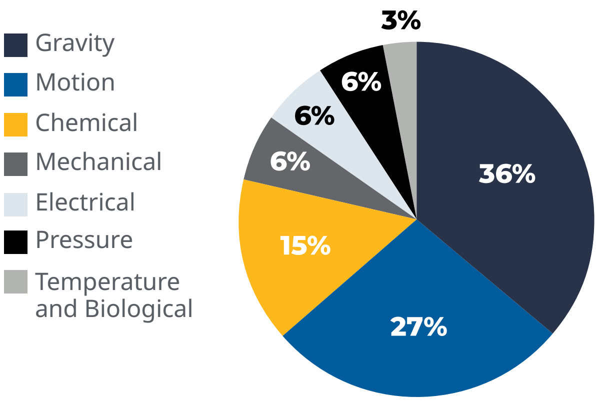
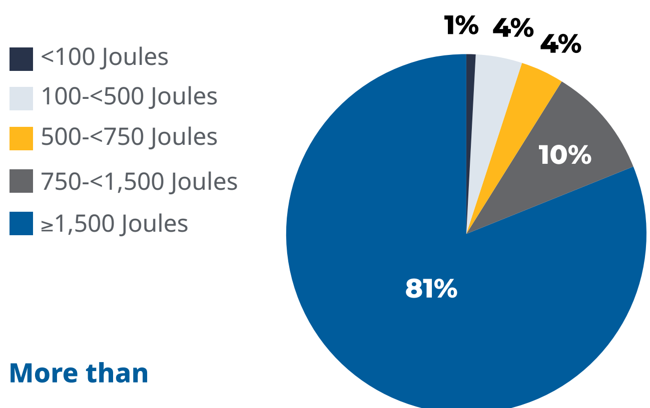


FIG 12. DISTRIBUTION OF ENERGY MAGNITUDE (2023-2025)



More than

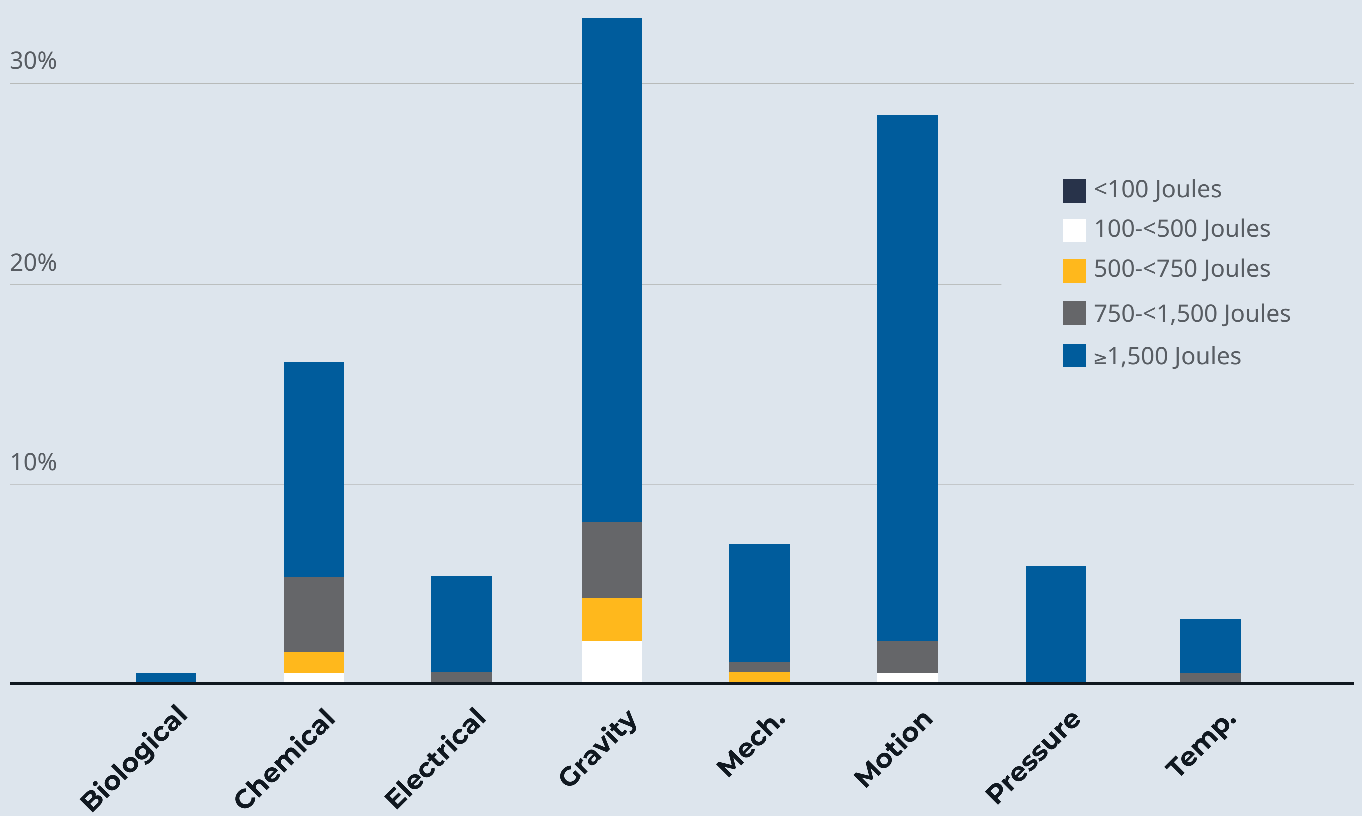
3/4

of the PSIs involved energy equal to or greater than 1,500 Joules.

Reflective Question

How coupled should a serious injury to a fatality be and what does this mean for the energy magnitude you use to build your SIF prevention program?

FIG 13. DISTRIBUTION OF ENERGY MAGNITUDE ACROSS ENERGY TYPES (2023 TO 2025)



Some energy types are common such as Gravity, Motion and Chemical while others are infrequent such as Biological, Temperature and Electrical. Radiation and sound energies were not present. Energy at lower magnitudes (<1,500 Joules) were more prominent in Chemical, Gravity and Motion energy types.

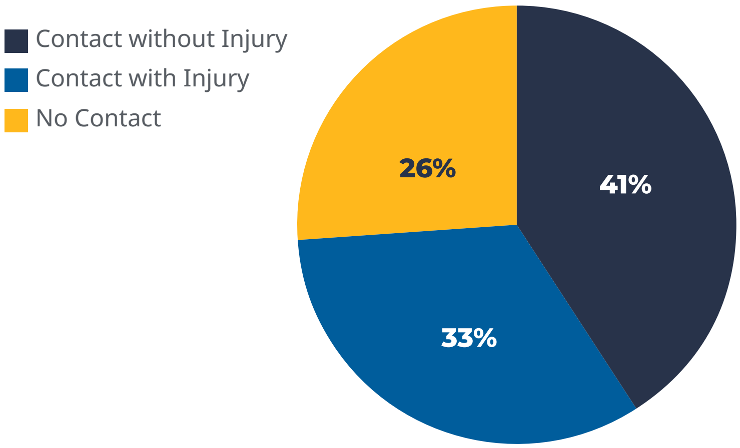
The distribution of energy types in reported PSIs should be interpreted in the context of known differences in human hazard recognition. Research indicates that some forms of hazardous energy, including gravity and motion, are more readily recognized, while mechanical, pressure, chemical and temperature hazards are more frequently overlooked. Therefore, the prevalence of energy types in PSI reporting may not directly represent the prevalence of exposure to those energy types.

Reflective Question

Does energy type influence PSI submission?

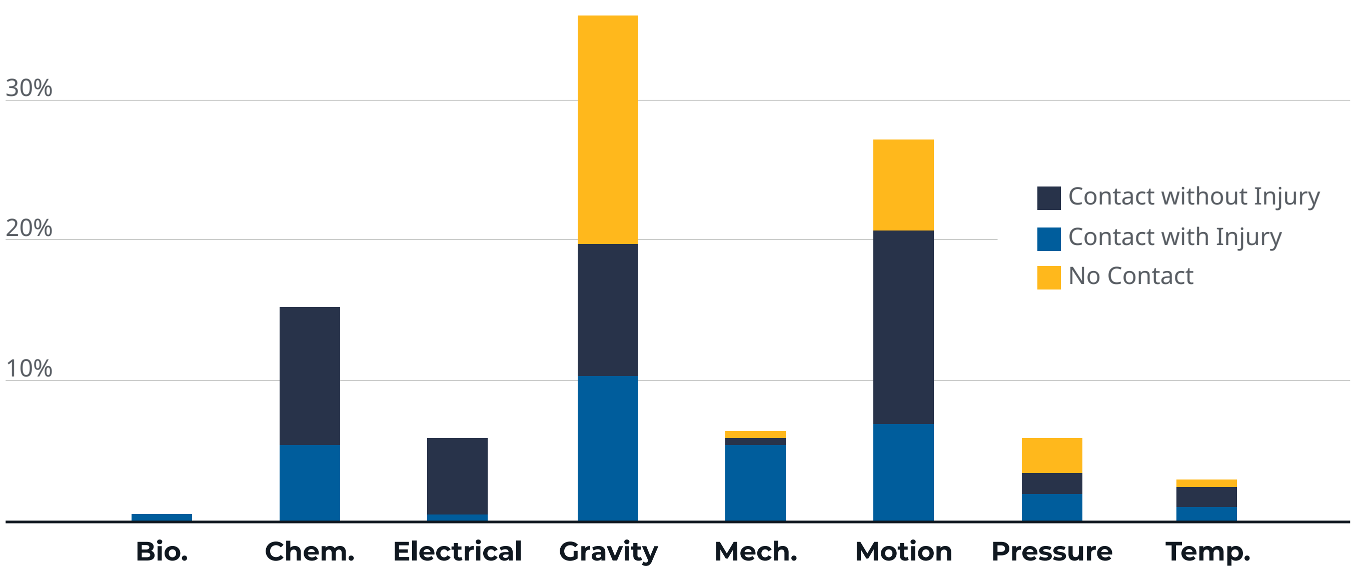
Energy Contact

FIG 14. DISTRIBUTION OF ENERGY CONTACT TYPES (2023-2025)



Contact without Injury was the most numerous in the PSIs followed by Contact with Injury. No Contact PSIs represented approximately one quarter of the PSIs. These No Contact PSIs are primarily situations where the worker was not in close proximity to the energy.

FIG 15. DISTRIBUTION OF ENERGY CONTACT ACROSS ENERGY TYPES (2023-2025)



PSIs involving no contact with the energy primarily consist of gravity, motion and pressure energy types. Contact with an injury are dominated by mechanical, chemical and gravity. PSIs involving electrical are almost entirely Contact without Injury.

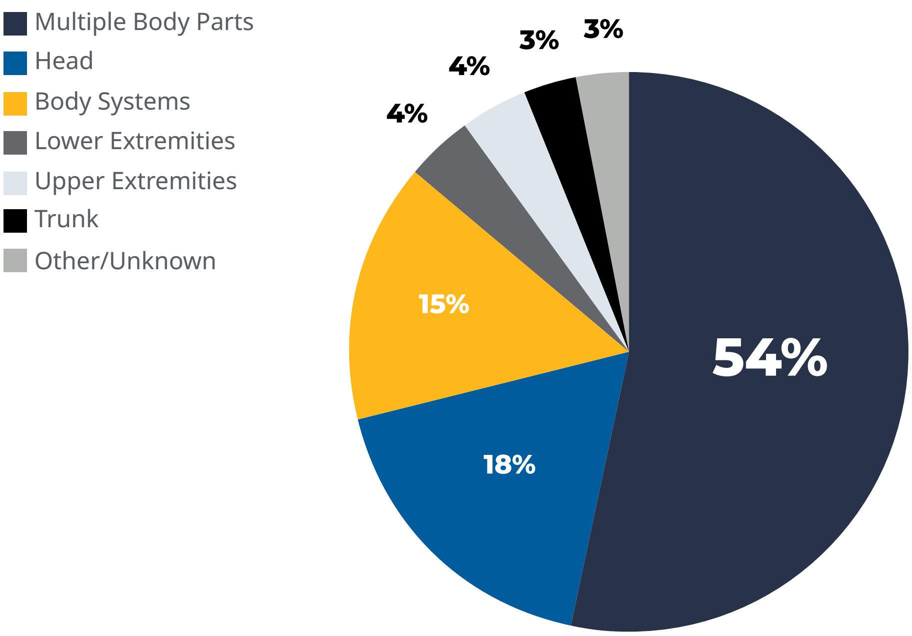
Reflective Question

What is it about some types of energy that almost always result in an injury while others do not?

Body Parts

The distribution of body parts was dominated by Multiple Body Parts, Head and Body Systems, accounting for almost 90% of PSIs. These categories are consistent with fatality potential. Relative to SIF actual definitions like EEI and IOGP, these definitions did not have material impact on the classification of SIF potential within this data set. This is because it is not possible to assess the specifics of a potential serious injury down to the level that is required for classification by these definitions.

FIG 16. DISTRIBUTION OF BODY PARTS AT RISK OF PSIs (2023-2025)



Multiple Body Parts, Head, and Body Systems accounted for almost

90%

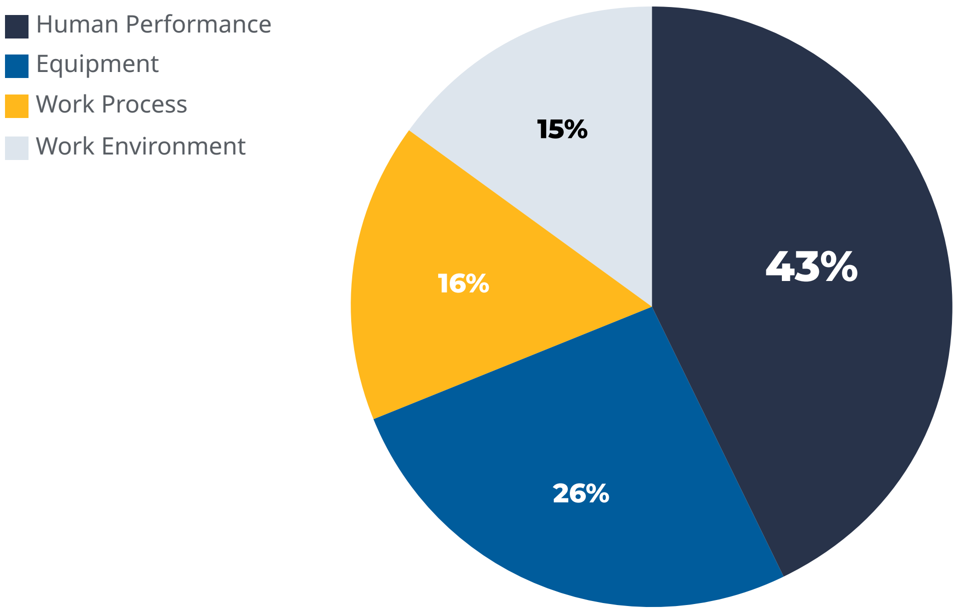
of body parts at risk of PSIs .

Reflective Question

What does the comparatively low contribution of PSIs involving body parts exclusively associated with serious injury potential suggest what data is not present in the PSI data set?

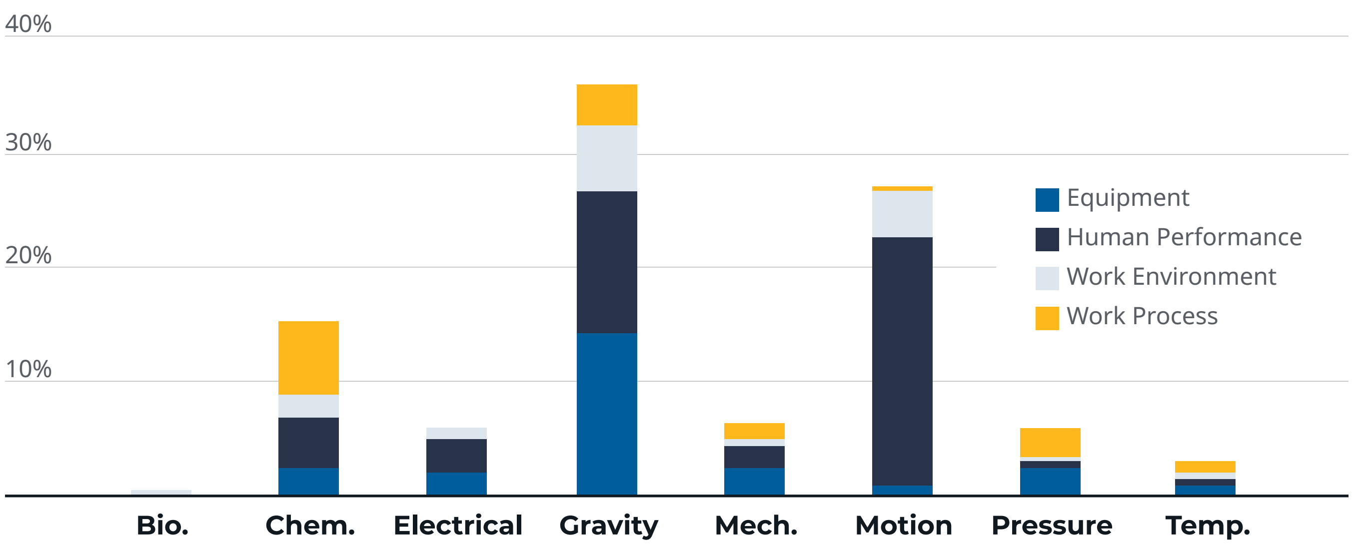
Proximal Cause

FIG 17. PROXIMAL CAUSE (2023-2025)



The most prominent Proximal Cause was Human Performance, followed by Equipment, Work Process and Work Environment.

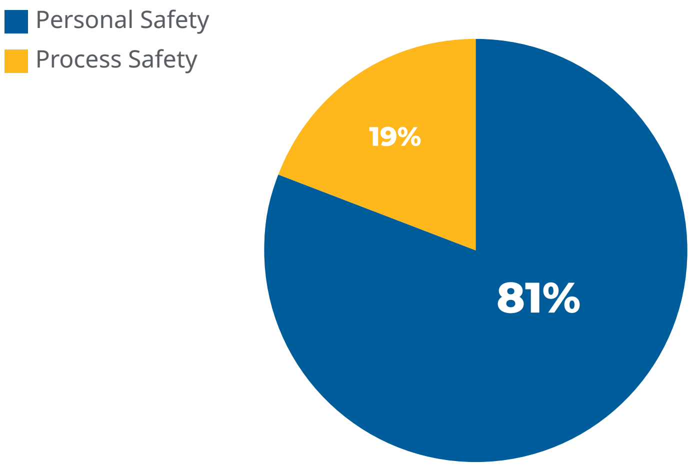
FIG 18. PROXIMAL CAUSE ACROSS ENERGY TYPES (2023-2025)



When proximal cause is considered alongside Energy Type, it can be observed that Gravity-related PSIs are equally represented by Human Performance and Equipment proximal causes. However, Motion Energy is almost entirely comprised of Human Performance proximal causes. Other notable insights are that Chemical, Pressure and Temperature energy types all have a significant component of Work Process proximal causes.

Safety Incident Type

FIG 19. SAFETY INCIDENT TYPES (2023-2025)

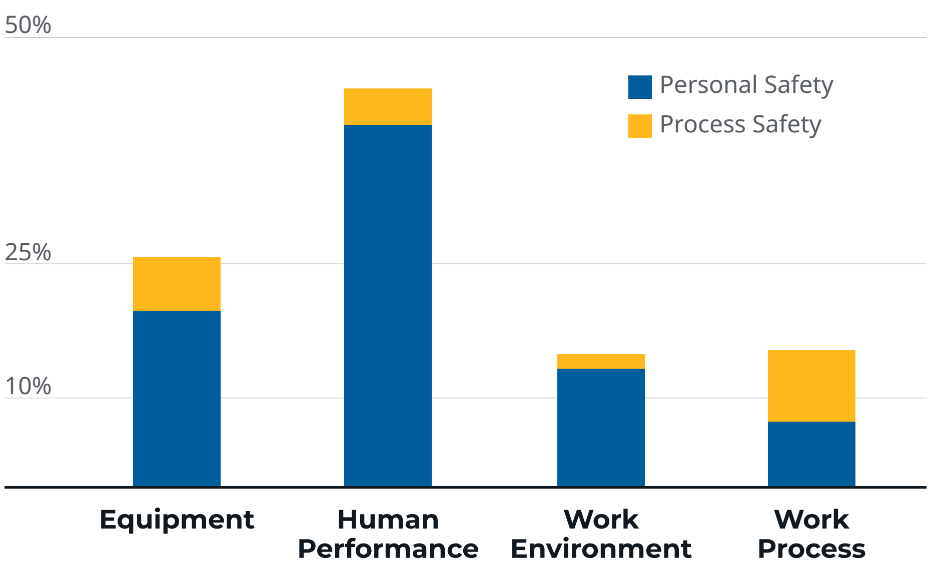


Approximately

80%

of the data were Personal Safety incidents, with **about 20% being process safety**. This indicates that a Personal Safety program alone is not enough to prevent high-consequence incidents.

FIG 20. PROXIMAL CAUSE ACROSS PERSONAL AND PROCESS SAFETY INCIDENT TYPES (2023-2025)



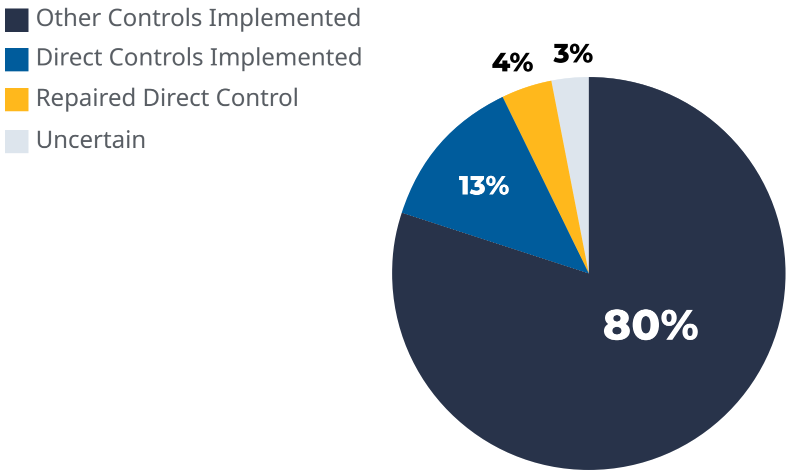
Process safety incidents included a **larger component of Work Process proximal causes than compared to Personal Safety**, indicating an opportunity to understand and improve the gaps between work-as-imagined and work-as-done. Personal Safety incidents were dominated by the Human Performance proximal cause. A process safety program can help in the prevention of SIF.

Reflective Question

Does your company have a process safety program to prevent the loss of containment of hazardous substances/energy?

Controls

FIG 21. USE OF DIRECT CONTROLS IN FOLLOW-UP ACTIONS (2023-2025)



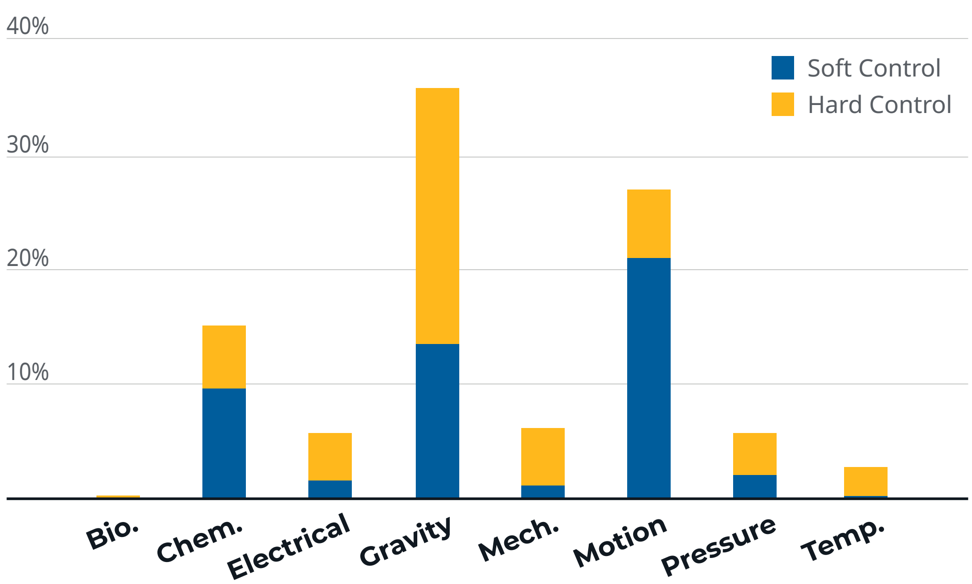
Hard Controls were present in

50%

of the PSIs.

A **Direct Control** was implemented as a follow-up action in approximately one-fifth of PSIs. In 4 percent of PSIs a Direct Control was present but failed when needed and had to be repaired.

FIG 22. DISTRIBUTION OF HARD AND SOFT CONTROLS ACROSS ENERGY TYPES (2023-2025)

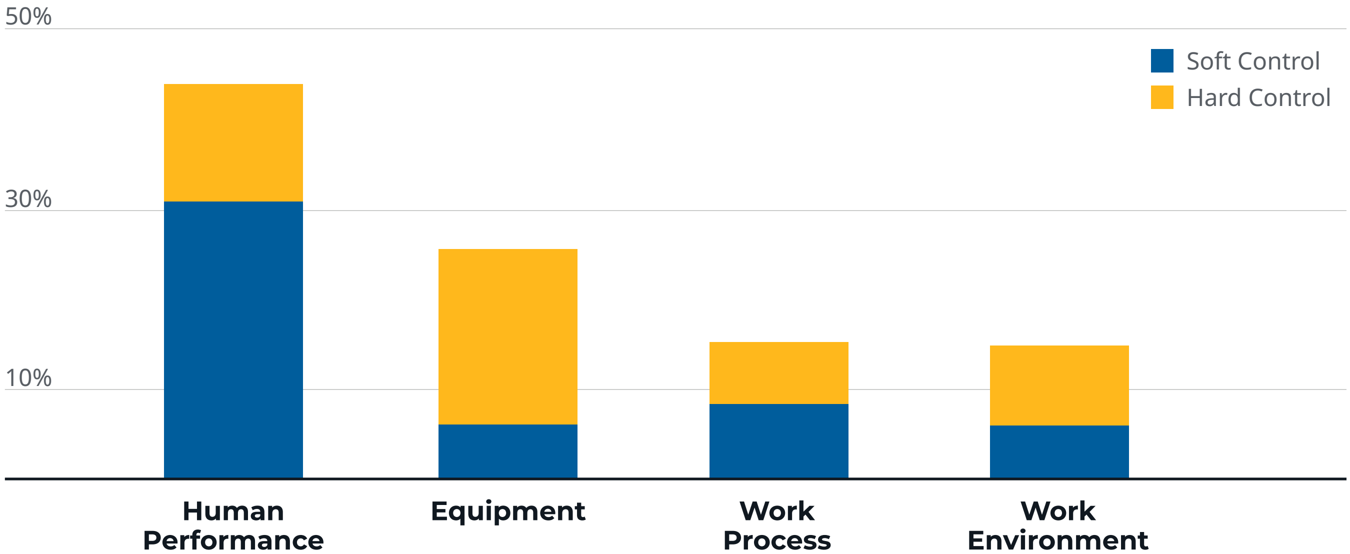


Hard Controls are more prevalent with Temperature, Mechanical, Electrical and Pressure energy types. **Soft Controls** make up a significant proportion of Motion follow-up actions.

The greatest opportunity for industry improvement is not identifying new risks—it is preventing the same high-potential events from happening again.

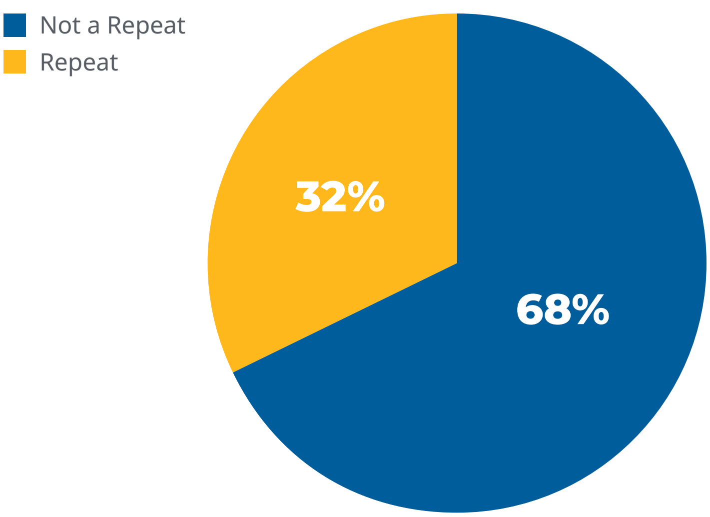
Every PSI is evidence of exposure to hazardous energy; every repeat PSI is evidence that industry learning has not yet been fully realized.

FIG 23. DISTRIBUTION OF HARD AND SOFT CONTROLS ACROSS PROXIMAL CAUSE TYPES (2023-2025)



Repeat PSIs

FIG 24. REPEAT PSIs (2023-2025)



Repeat PSIs made up

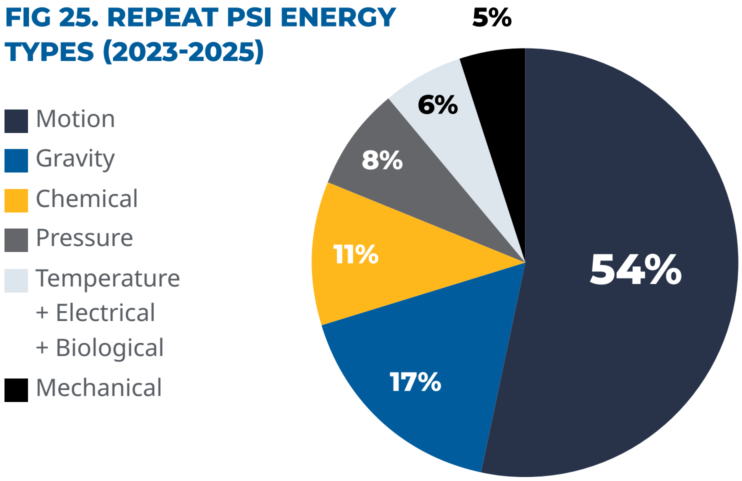
1/3

of the PSIs indicating that numerous companies are experiencing similar incidents, involving the same equipment, in similar environments and occurring in the same manner. These represent **clear opportunities for industry action**.

Reflective Question

How can industry make meaningful improvements in the use of Hard Controls for PSIs involving Motion?

FIG 25. REPEAT PSI ENERGY TYPES (2023-2025)



The energy ‘Motion” was the most significant contributor to Repeat PSIs.

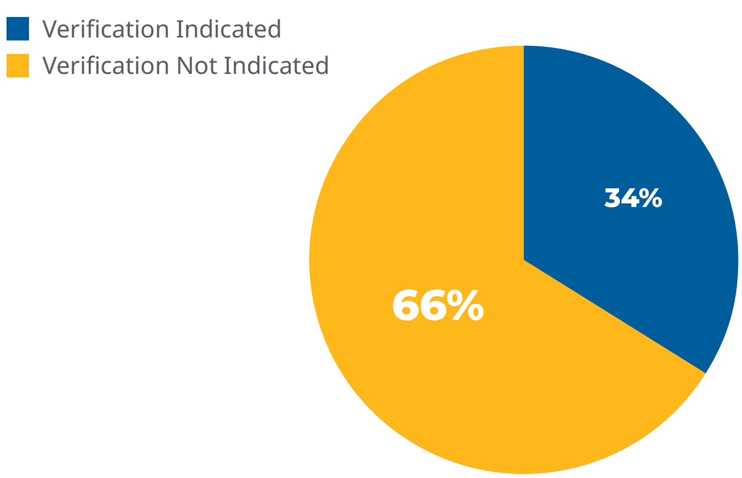
Top three repeats:

- **Vehicle to vehicle incidents** involving haul trucks, dozers, graders and light-duty trucks
- **Struck by objects** involving pipe, rocks and tow cables coming through the unguarded windows of excavators, dozers and heavy-duty tow vehicles
- **Runaway haul trucks** where the park break was not applied.

Critical Control Verification

Verification of critical controls was indicated in approximately one-third of PSIs. It is recognized that this level of detail may not be shared by all whom submit a PSI; however, given how critical it is to SIF prevention, there is an opportunity for industry to reflect on the verification activities implemented after a PSI.

FIG 26. VERIFICATION INDICATED IN PSIs (2023-2025)



Critical Control Verification was Indicated proportionally less when the PSI involved an Injury. This observation is significant and counterintuitive.

The effect becomes more visible when the respective ratios across the various Energy Contact types are evaluated.

Reflective Question

What is it about Motion Energy that makes it so hard to control?

FIG 27. CRITICAL CONTROL VERIFICATION ACROSS ENERGY CONTACT TYPES (2023-2025)

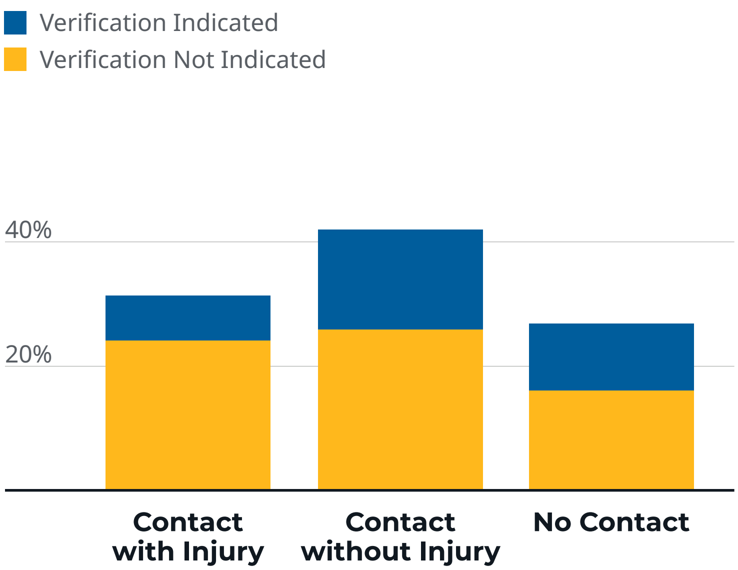
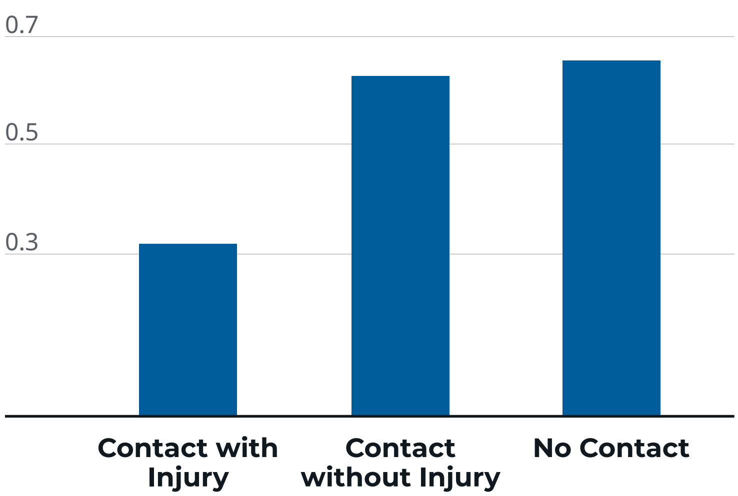


FIG 28. CRITICAL CONTROL VERIFICATION RATIO TO ENERGY CONTACT TYPE (2023-2025)



Serious injury and fatality prevention is ultimately about understanding and managing hazardous energy.

The predominance of high-energy events, combined with the significant role of human performance, highlights the need to strengthen systems, direct controls, and verification processes that remain effective even when mistakes happen.

Critical control verification not indicated is essentially the same across 'Contact without Injury" and 'No Contact' but

2x

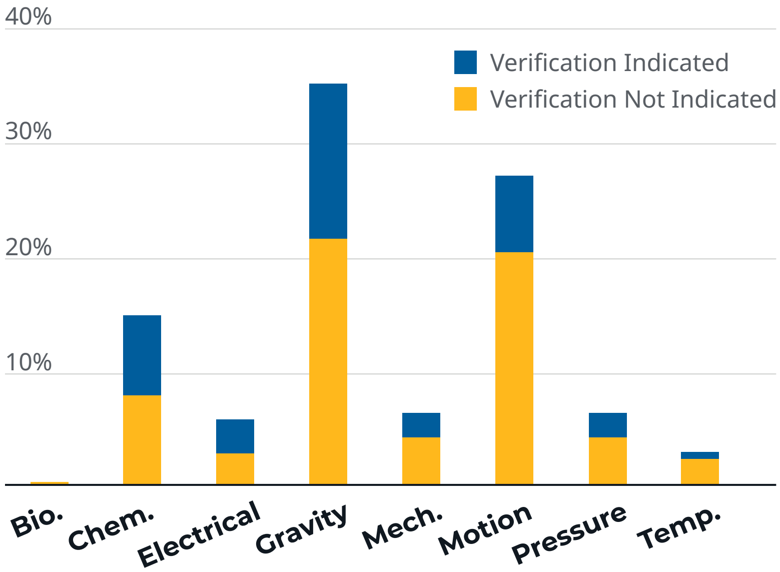
as unlikely **when a PSI involves an injury.**

The data was evaluated across Proximal Cause Type, presence of Hard Controls and many other parameters not shared here; **however, none of these were able to explain this inverse statistically significant relationship**.

Reflective Question

What is it about Injury PSIs where Critical Control Verifications are less frequent?

FIG 29. CRITICAL CONTROL VERIFICATION ACROSS ENERGY TYPES (2023-2025)



Verification activities occur more frequently with some types of energy than others. For example, verification activities occur within

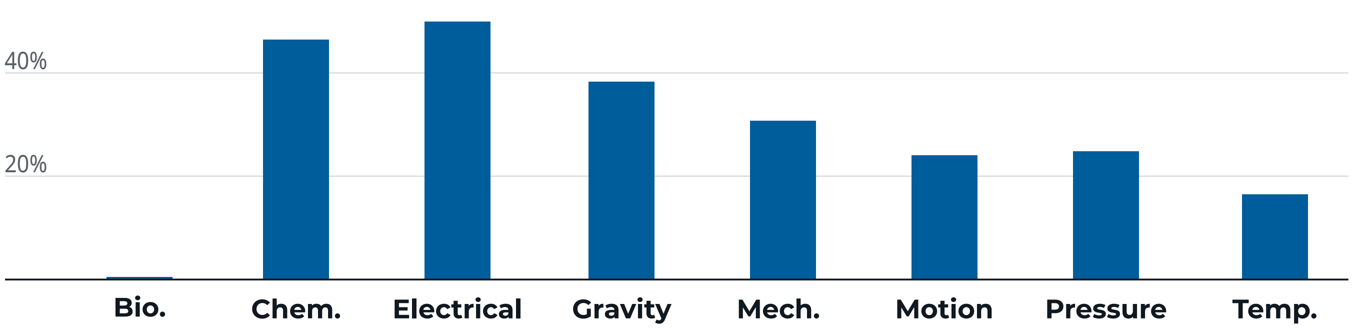
50% **of the Electrical PSIs**

compared to

17% **of the Temp. PSIs**

This variance should prompt curiosity about when and how critical control verification occurs, what happens when deficiencies are found, and importantly, **what senior management sees and hears about them**.

FIG 30. CRITICAL CONTROL VERIFICATION PERCENTAGE WITHIN ENERGY TYPE (2023-2025)



Reflective Questions

1. Why do some type of energy PSIs include verifications more often while others do not?

2. Are controls reported as found or as left, and what does that mean for interpreting verification results?

06 // Conclusion

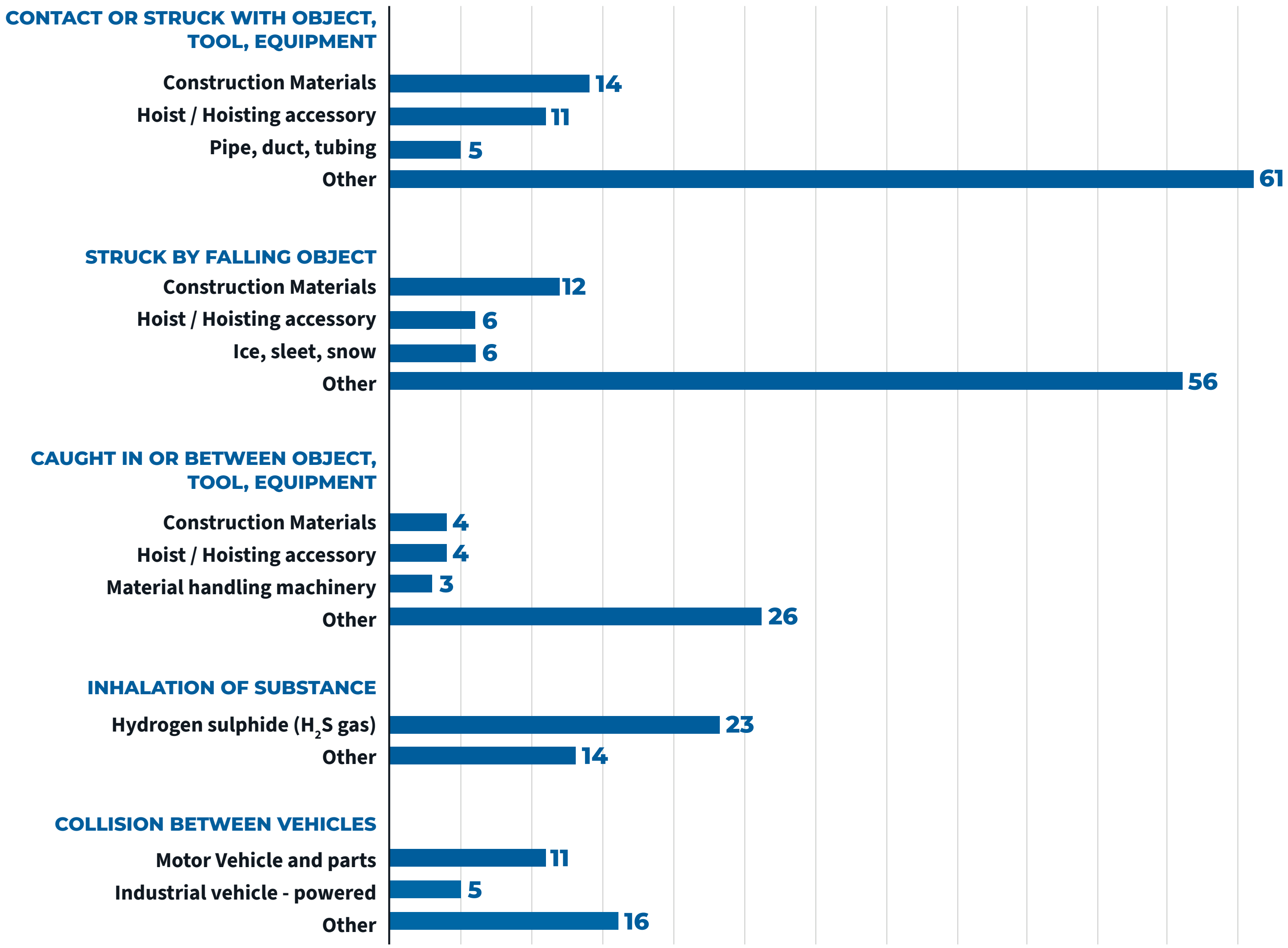
The findings in this report demonstrate that many organizations are encountering similar hazardous energy exposures, repeat incidents and control challenges.

By sharing learnings, improving critical control verification and focusing on effective prevention strategies, industry has an opportunity to reduce repeat events and strengthen serious injury and fatality prevention across the energy sector.

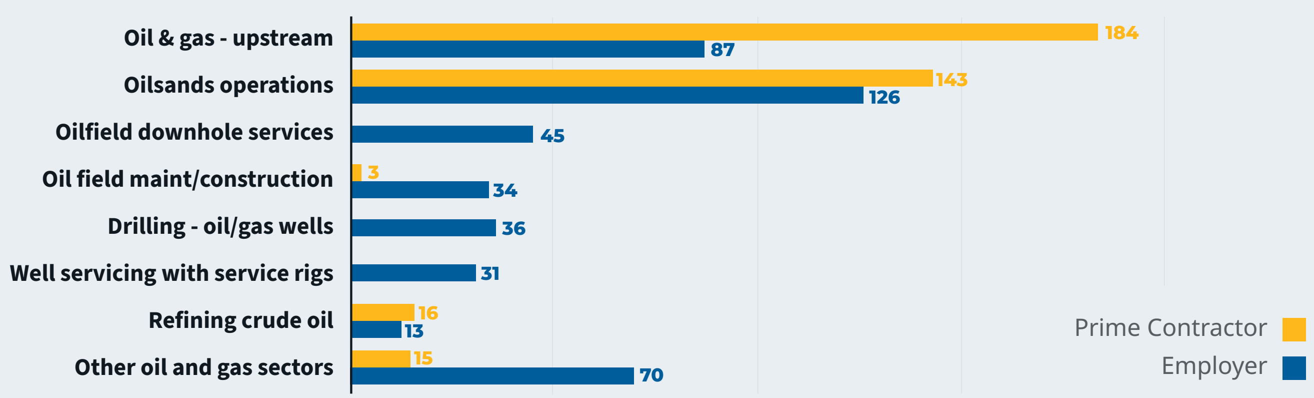
The value of PSI reporting is not only in understanding what happened, but in ensuring those lessons help prevent the next event, regardless of where it occurs.

07 // Supplementary Statistics

SOURCES OF THE TOP FIVE INCIDENT TYPES (INCIDENT COUNT)(2019-2025)



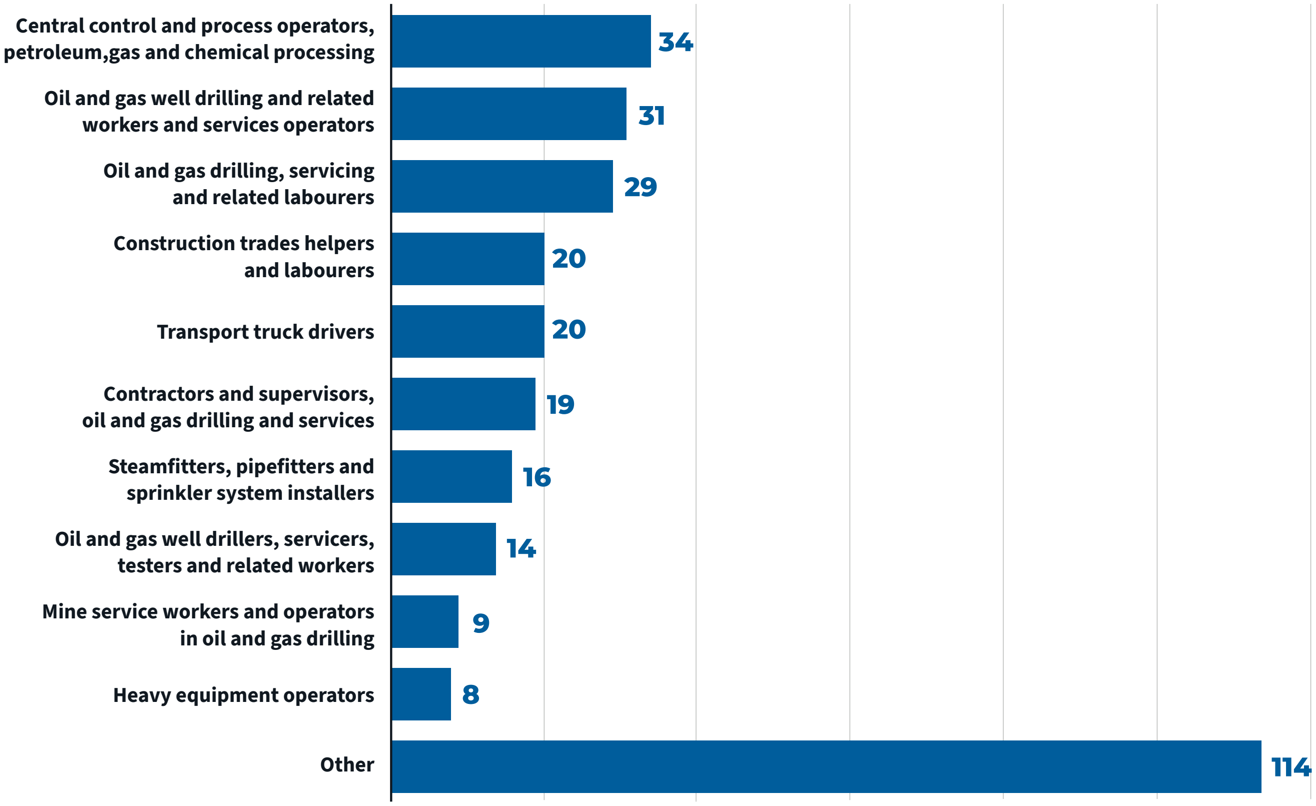
REPORTS BY INDUSTRY SECTOR



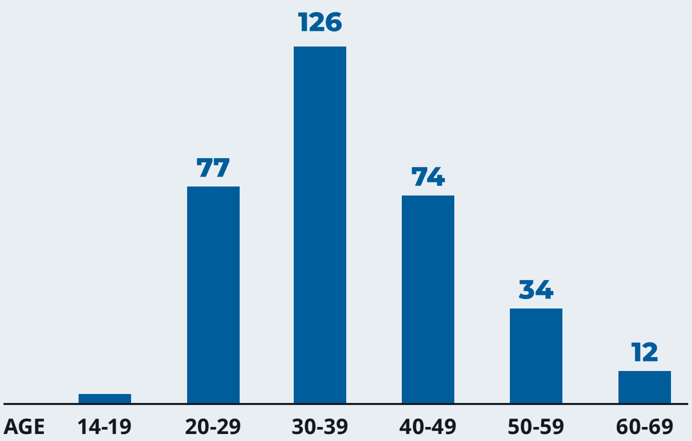
Demographics

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.

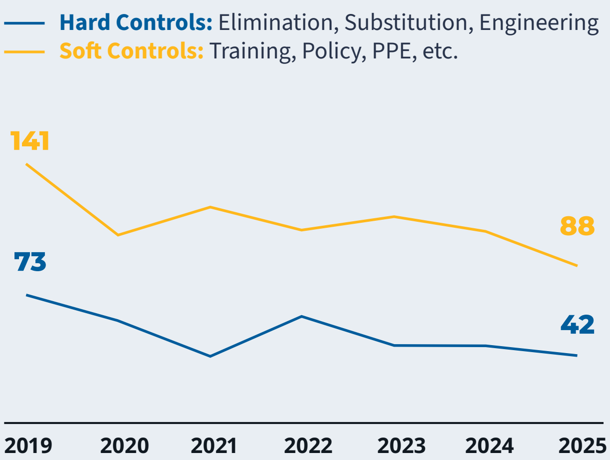
INJURED PERSON OCCUPATIONS



INJURED PERSON AGE GROUPS



CORRECTIVE ACTIONS OVER TIME



Glossary

BODY PARTS
Body parts at risk of injury were classified into one of eight categories: Head, Neck, Trunk, Upper Extremities, Lower Extremities, Multiple Body Parts, Body Systems and Other Body Parts.

CRITICAL CONTROL VERIFICATION INDICATED
Verification that critical controls are in place to prevent reoccurrence is key to the management of SIF risk. “Verification Indicated” means that some type of ongoing verification was indicated in the PSI follow-up actions, such as inspections, leadership observations, audits, etc.

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.

ENERGY CONTACT TYPE
To better understand how close the energy came to people (Contact or Proximity), energy contact was classified into three categories: ‘No Contact’, ‘Contact without Injury’ and ‘Contact with Injury’.

ENERGY MAGNITUDE
PSIs were also analyzed to the magnitude of hazardous energy. Energy magnitude was grouped into <100 Joules (First Aid), <500 Joules (Medical Treatment), <750 Joules (Restricted Duty) and equal to or greater than 1,500 Joules (Days Away from Work) based on the EEI Severity Based Lagging Indicator.

PROXIMAL CAUSE
Proximal cause was broken down into four categories that best capture the most immediate contributing factor to occur with a PSI recognizing that with most serious injuries and fatalities there are numerous contributing factors. These categories are Human Performance, Work Environment, Work Process, and Equipment. These categories are adaptations from the ESC’s Process Safety Metrics and Event Reporting Guide.

HARD AND SOFT CONTROLS
Controls were grouped into “Hard” and “Soft” controls using the existing categories within the Alberta PSI submission portal. Hard controls include eliminated hazard, substituted equipment and engineering controls. These hard controls also consist of a sub-category called Direct Controls. Soft controls include changed policy, training, personal protective equipment and other.

INCIDENT TYPES
Incidents involving an uncontrolled or unplanned loss of primary containment (LOPC) were classified as process safety in accordance with ESC’s Process Safety Metrics and Event Reporting Guide while all other incidents were classified as personal safety.

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.

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

PSI - 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.

PSI - POTENTIALLY SERIOUS INCIDENT

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.

SIF

This is a serious injury or fatality (SIF).

SIF CAPACITY

SIF Capacity occurs when a release of hazardous energy has occurred, but a direct control was present to target and mitigate the hazardous energy and not be susceptible to human error. SIF Capacity is especially important to prevent industry reoccurrence by learning from what others have learned.

SIF EXPOSURE

SIF Exposure occurs when a person is exposed to a work situation where there is potential for a SIF incident, but no release of energy has taken place.

WCB - WORKERS' COMPENSATION BOARD

The mandate of the WCB is to provide compensation to workers who are injured on the job and help them recover and return to work.

Resources

[Energy Safety Canada SIF Prevention]

[Energy Safety Canada Line of Fire]

[Energy Safety Canada PSI]

[Potentially serious incident reporting: legislation updates]

[Careers in Energy Labour Market Reports]

[Construction Safety Research Alliance]

[Health and Safety Insights Reports]

[ESC WCB Funding Codes]

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