ENERGY SAFETY CANADA

ESC 2025 PSI Report Insights

Presenters:

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Agenda

- Annual PSI Report
- Key Findings
- General Trends
- Narrative Insights
- Next Steps

What is a PSI?

A Potentially Serious Incident (PSI) is an event where a reasonable and informed person would determine that under slightly different circumstances, there would be a high likelihood for serious injury to a person.

This is also referred to as a:

- pSIF or Potentially Serious Incident or Fatality,
- HiPo – High Potential Incident
- Etc.

*Poll Reminder

Annual PSI Report

- The 2025 report data has been aligned with calendar year
- ESC has been slowly accumulating the narrative dataset year by year since 2020
- To continue improving insights from PSI data, AB OH&S provided details (narrative) for:
  - Exposure to electric current (28 incidents)
  - Caught in or Between Object, Tool or Equipment (42 incidents)

Key Findings

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

- “Contact or struck with object, tool, equipment”, “Struck by falling object”, and “Fall to lower level”, among the most frequently reported PSI types in 2024. The latter showing a notable 50 percent increase.

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

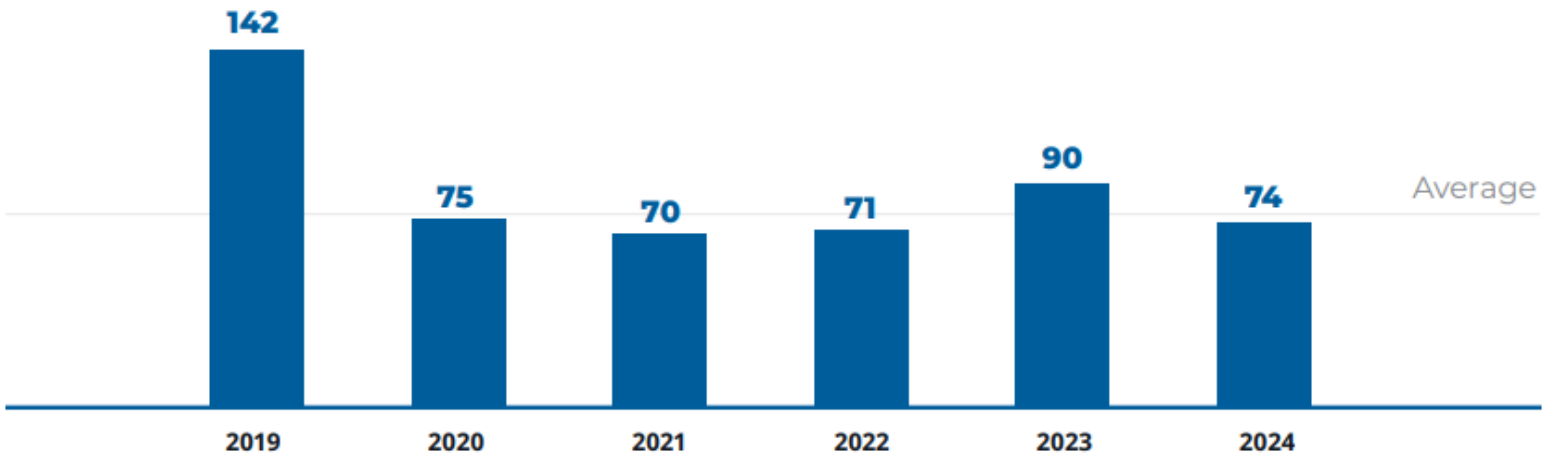
- Repeat PSIs: 70% of Exposure to Electrical Current PSIs were repeats, while 14% of Caught-In PSIs were repeats.

- Insights Impact Assessment identified mostly low scores (3-4) indicating a reduced potential for industry-wide transformation without deliberate learning strategies.

PSI Trending

- PSI rates are flat after initial burst in 2019
- Average is 75 per year (2020-2024)
- Outlier outreach findings
  - Federally-regulated companies
  - Companies with internal alignment issues

FIG 1. NUMBER OF PSI REPORTS



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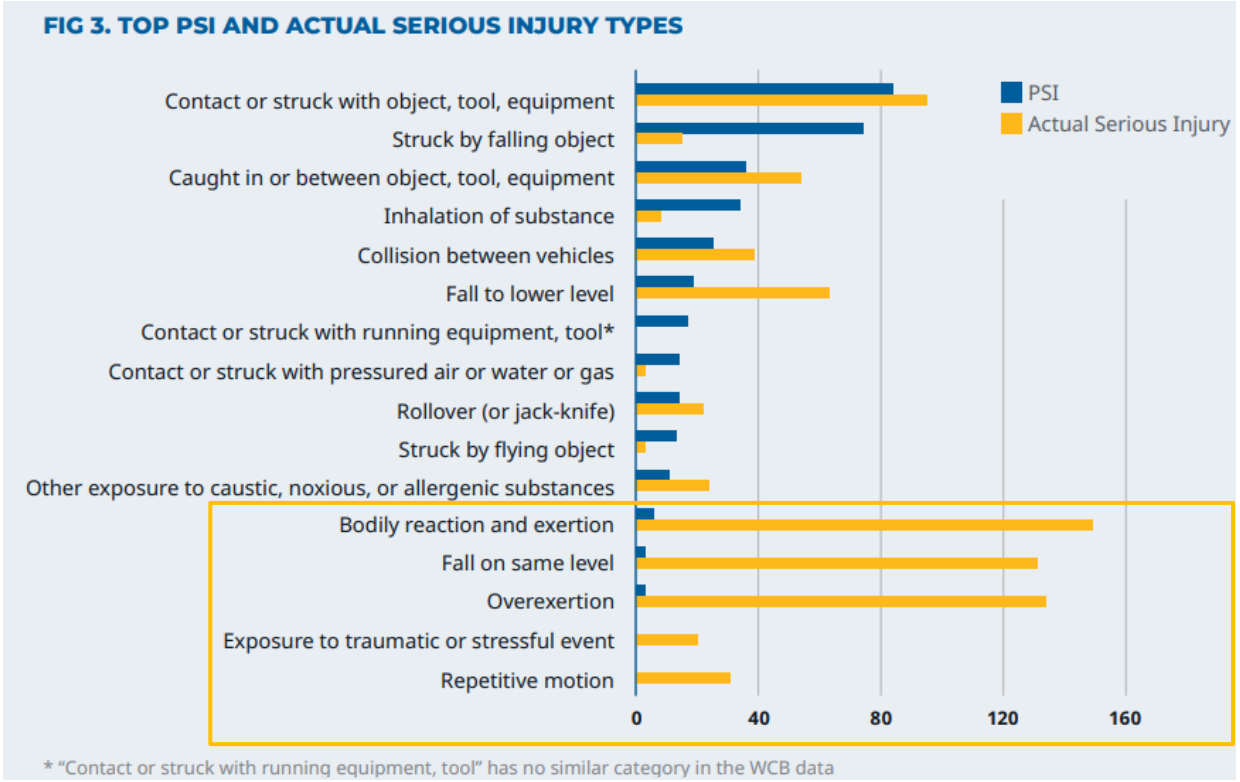
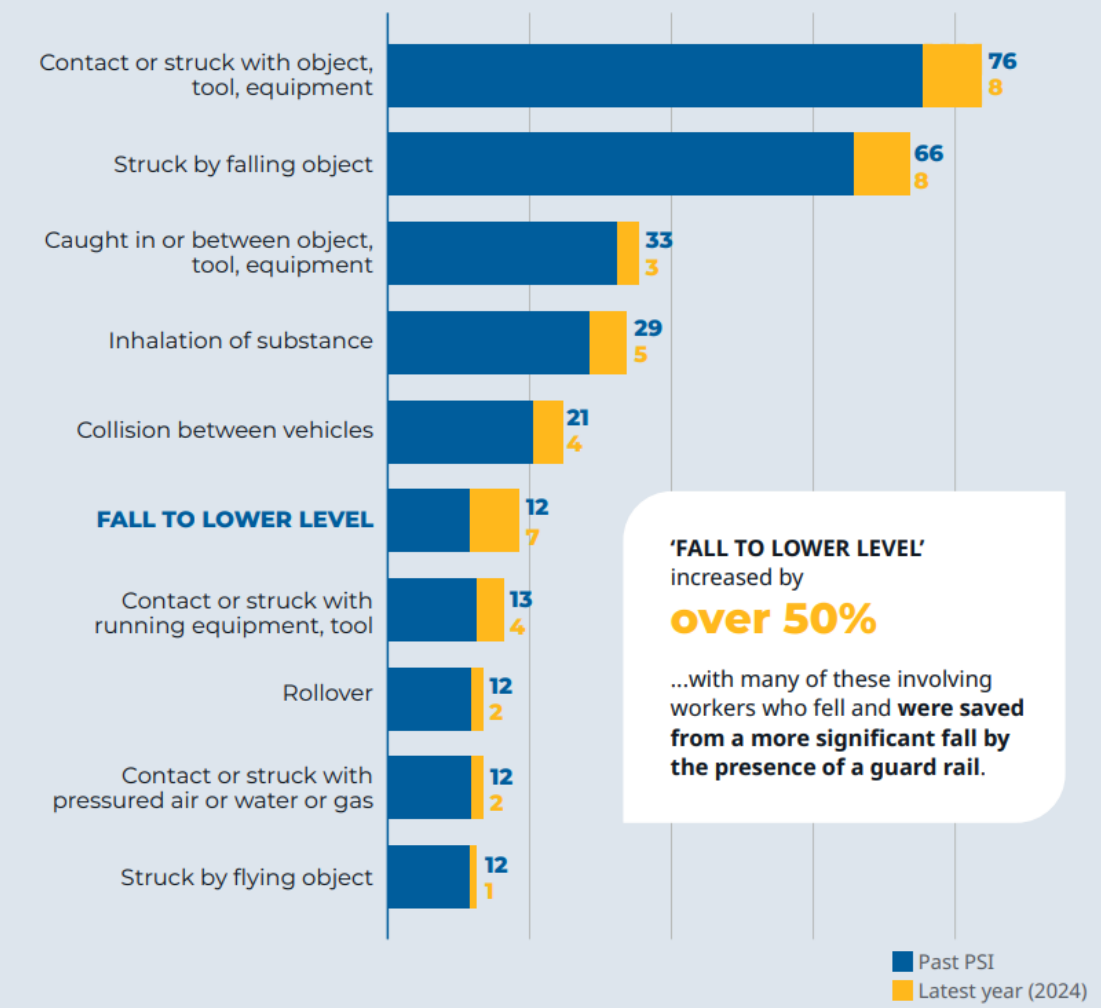
PSI vs SIF

- For every PSI there are two actual Serious Injury and Fatality (SIF)** Incidents
- If WCB claims not associated with hazardous energy are removed, this ratio is 1 to 1
- Opportunity for further discussions on the definition of SIF

**Using SK WCB Serious Injury definition, 50+ lost time days + fatalities



Top 10 Incident Types



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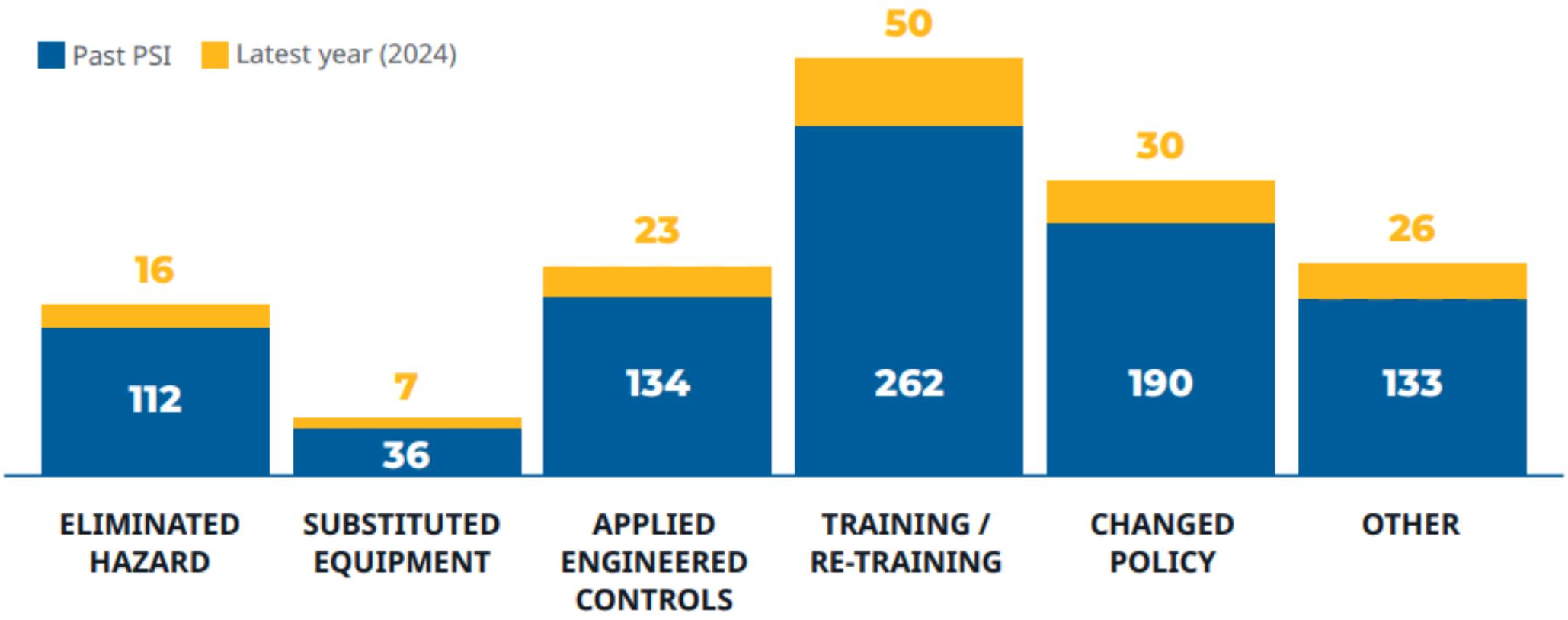
Follow-up Actions

FIG 4. FOLLOW-UP ACTIONS



2025 Focus - Narrative Analysis

Life Saving Rules

Alignment with the 10 Life Saving Rules. Only one rule is allocated for each PSI if applicable. Applicability is assessed on whether it would be reasonably foreseeable to connect the rule to the work in a job briefing.

Direct and Alternative Controls

Hazardous energy is present with serious injuries and fatalities. Direct controls are those that target and mitigate the energy and are effective when a mistake is made. When a Direct Control is not feasible at least two Alternative Controls must be present: physical obstacle, dedicated monitoring and visual reminder.

Repeat Incidents

When two or more incidents are occurring in the same manner an opportunity for industry learning and systematic action exists. This can be combined with the Insight Impact Score to point the way forward. Reduction in repeat incidents is one indicator of a learning company and industry.

Insight Impact Assessment

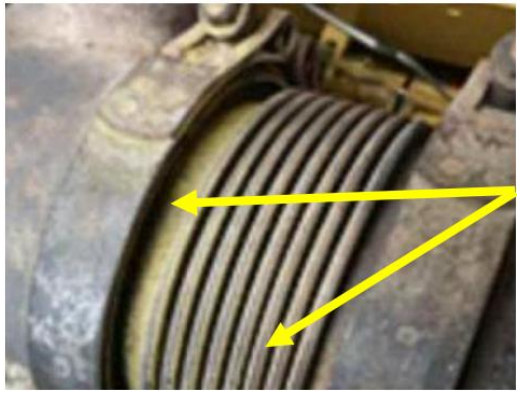
Industry can learn from all PSIs; however not all PSIs have the same insights and ability to have an impact. This impact is assessed across three factors: novelty, applicability and necessity for change. These are combined into a score ranging from a low of 3 to a high of 9.

Insights Impact Assessment

	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.

Safety Alert Example

- In response to a manufacturer's notification, a midstream company conducted an exposure assessment of hexavalent chromium in a previously unidentified location.
- This assessment identified the need for controls to prevent overexposure.
- The presence of this residue and how it is produced was not known until the last few years.
- The residue may often be mistaken for sulfur and can be difficult to see with typical sodium lights.
- Exposure may occur if the residue is disturbed during tasks such as sampling, maintenance activities, or hot work like grinding and welding.



How could this be scored?

- Novelty: How new or unexpected the incident is

  High (3) - Entirely new mechanism, failure mode, or context not previously recognized; creates “unknown unknowns.”

- Applicability: How broadly the learning transfers across industry

  Medium (2) - Lessons apply across numerous sectors, but not all (e.g., drilling, construction, confined space work).

- Necessity for change: How much it challenges accepted beliefs or “the way we do things”

  High (3) - 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.

Safety Alert Example

- The factory guard that is normally over the pump shaft had been removed to access grease nipples, exposing several catch hazards that fatally injured the worker.
- Post-incident testing of the equipment found no abnormal operating conditions that would have required the guard to be removed.
- Evidence indicated that the worker was overtop of the exposed catch hazards, greasing the rear grease point on the pump while the shaft was rotating at 700 revolutions per minute (RPMs).

Narrative Insights - LSR and Energy

Life Saving Rules - 1/2 of PSIs

- Energy Isolation and Line of Fire
  - Energy Isolation – Confirm Isolation and Test for Residual Energy
  - Line of Fire - Dropped Objects and Moving Objects

FIG 8. LSR APPLICABILITY - EXPOSURE TO ELECTRICAL CURRENT

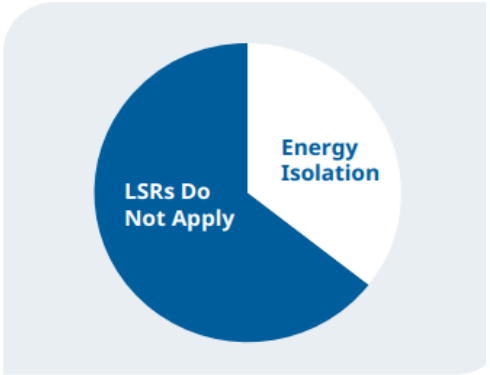
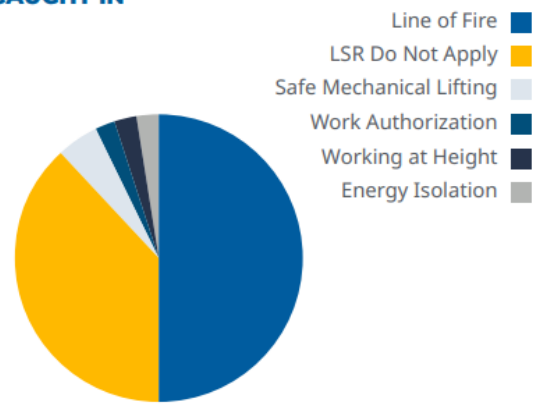


FIG 11. LSRS APPLICABILITY - CAUGHT IN

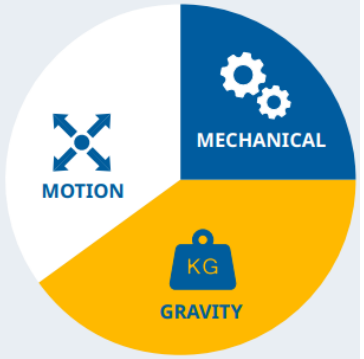


Energy Type

- Electrical for all Electrical PSIs
- “Caught-In” PSIs varied ranging from gravity, motion and mechanical energy types

FIG 12. DISTRIBUTION OF ENERGY TYPES - “CAUGHT IN”

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



Narrative Insights - Electric Current

- Half of the Electrical Sources are Overhead Powerlines (14)
- Alternative Controls were cited in 25% of follow-up actions
- 70% of these PSIs were industry repeats within the dataset

FIG 6. ELECTRICAL SOURCES

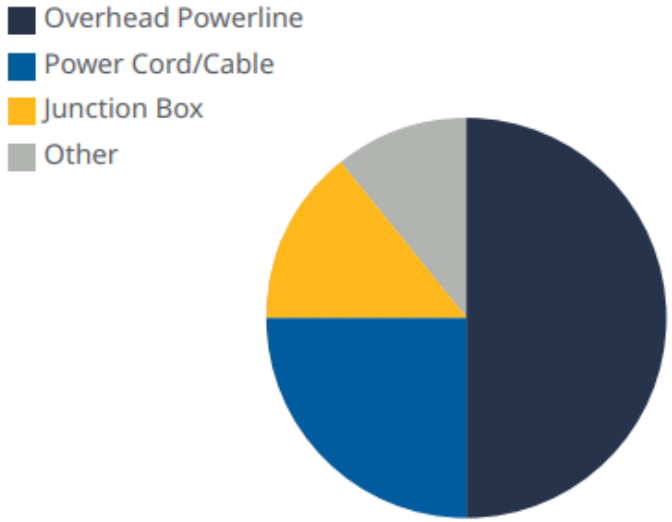
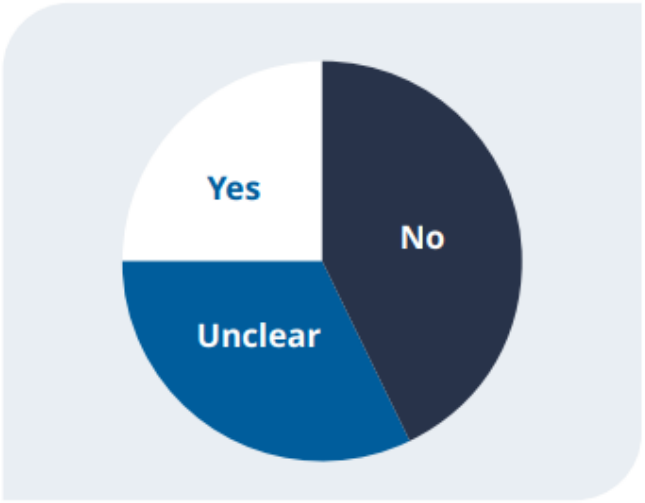


FIG 9. ALTERNATIVE CONTROLS CITED IN RECOMMENDATIONS - EXPOSURE TO ELECTRICAL CURRENT



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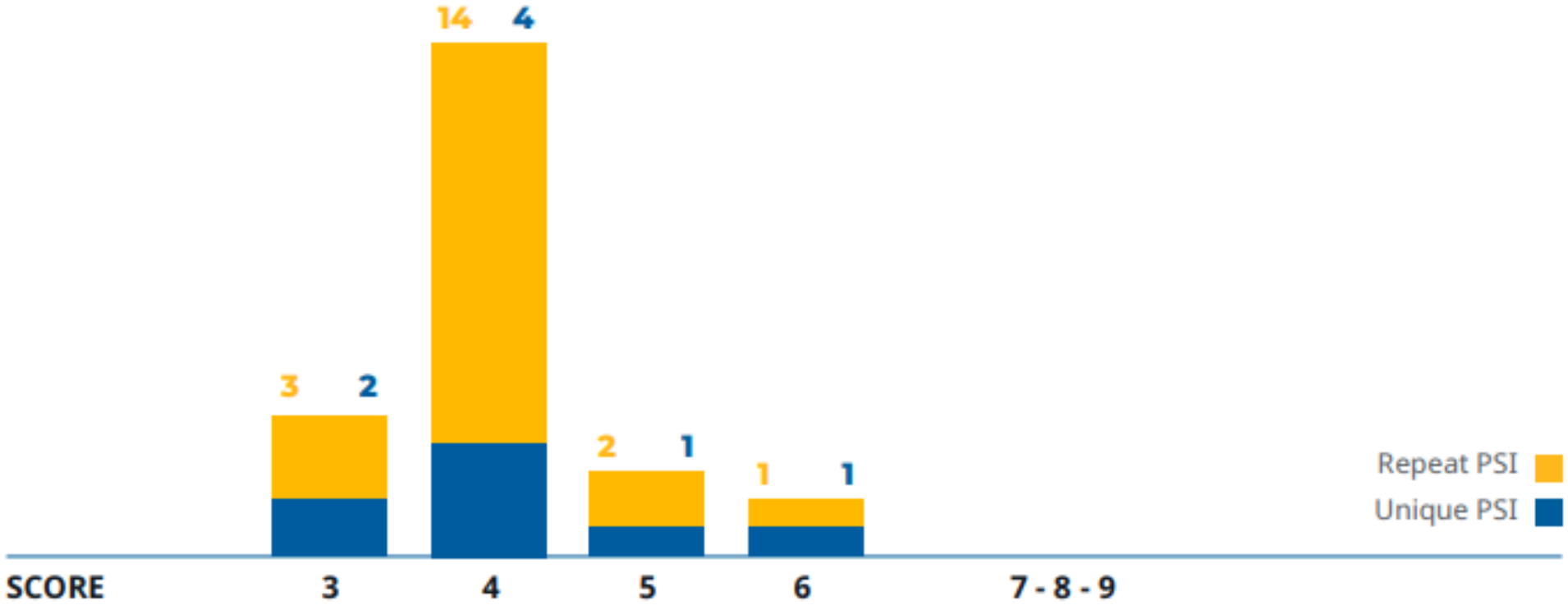
Insights Impact – Electric Current

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



Narrative Insights – "Caught-In"

- "Caught-In" PSIs involved a variety of equipment types and operating conditions
- Alternative Controls were cited in 40% of the follow-up actions
- 14% of these PSIs were industry repeats within the dataset

FIG 10. OPERATING CONDITION - CAUGHT-IN

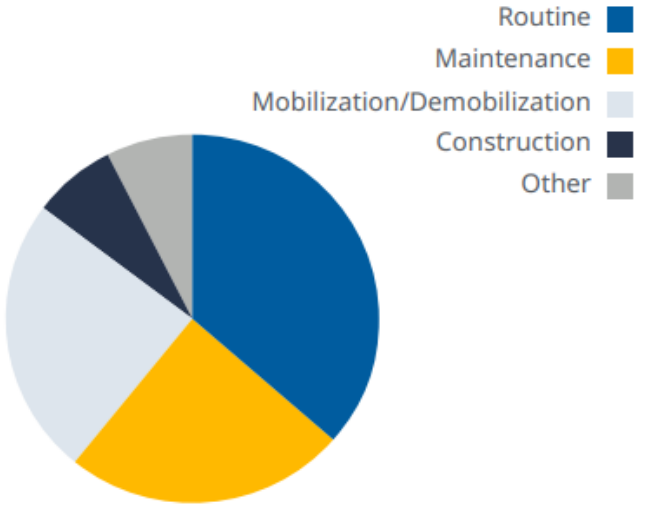
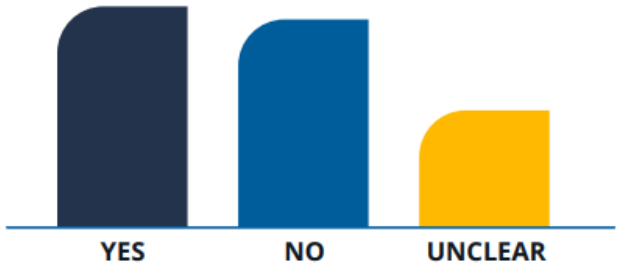
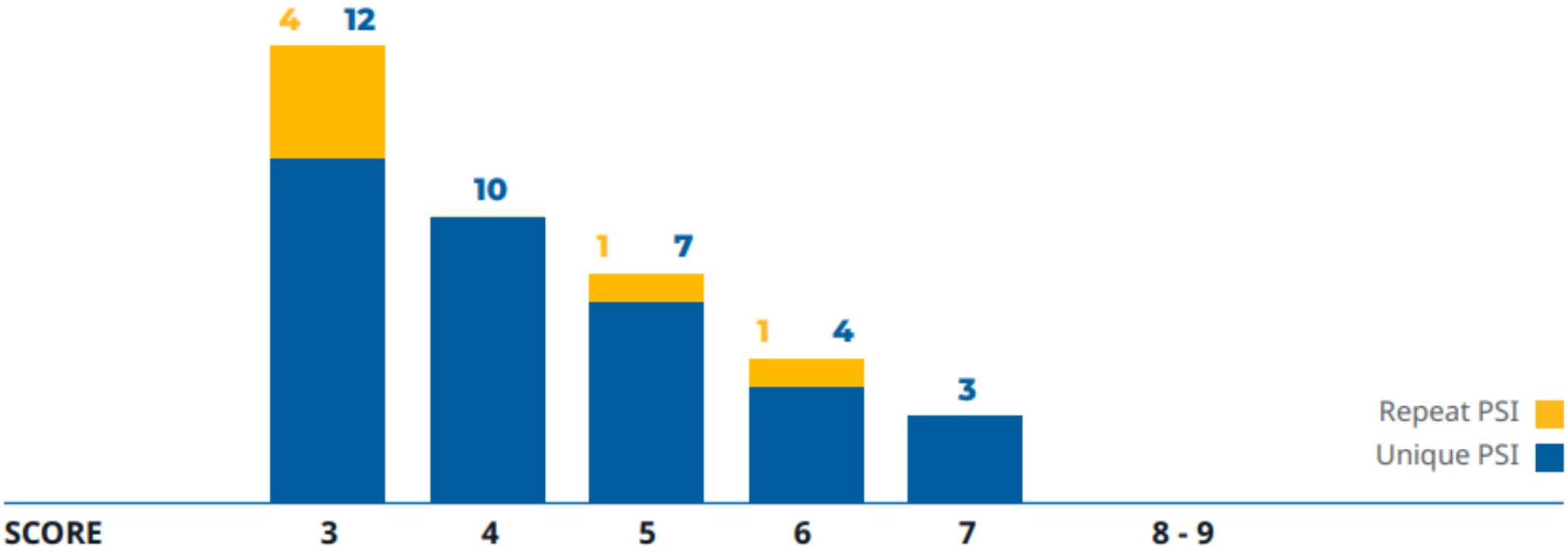


FIG 13. ALTERNATIVE CONTROLS CITED IN RECOMMENDATIONS - CAUGHT-IN



Insights Impact – “Caught-In”

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



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Proactive Safety Measures

- Industry should reflect on the Insights Impact assessment in relation to ESC safety alerts and other learning strategies.

- Industry should assess the use of Direct and Alternative Controls Strategy that are part of ESC's Critical Work Management Project and "Are You in the Line of Fire?" Program.

- Industry should take ESC's Powerline Safety Awareness Course.

Reflective Questions

- What is different about ‘repeat’ PSIs and what does this mean for learning?
- How can industry be more deliberate about learning from incidents? For instance, what tactics do you use at your company?
- How can understanding the insights of each PSI influence the approach taken for industry learning?

Next Steps

- Planned Quarterly Industry Aggregated PSI Notifications
- In 2026, ESC is going to be focusing more on SIF, this includes PSI

Thank you

Happy Holidays