Potentially Serious Incidents Summary

January 2021

2019 Q1 - 2020 Q3 Data
# TABLE OF CONTENTS

1.0 INTRODUCTION & OBJECTIVE ................................................................................................................ 4
2.0 REPORTING RATES & TRENDS OVER TIME ..................................................................................... 4
3.0 REPORTS PER INDUSTRY SECTOR ........................................................................................................ 6
4.0 INCIDENT CLASSIFICATIONS .................................................................................................................. 7
   4.1 Source per Type ................................................................................................................................. 8
5.0 INJURED PERSON DEMOGRAPHICS .................................................................................................... 9
6.0 INCIDENT FOLLOW-UP .......................................................................................................................... 10
DISCLAIMERS ............................................................................................................................................. 11
EXECUTIVE SUMMARY

OVERVIEW
This report provides a summary of Potentially Serious Incident (PSI) data from the Alberta oil and gas industry for the period of 2019 Q1 to 2020 Q3, for the purposes of understanding common trends and encouraging broader conversations around industry prevention efforts.

SUMMARY
Changes to the PSI definition back in 2018 and pending in 2021 are very important to ensuring that PSIs are targeted at the right level to maximize the learning potential in the prevention of serious incidents. However, the evolving optimization of the PSI definition is likely, in part, associated with the declining yearly trend in PSI submittals.

Only a small portion (4%) of active oil and gas companies have submitted PSI reports. This 4% makes up approximately a third of the industry activity. Opportunities exist to encourage more reporting across the entire industry.

Approximately half of the PSIs are line of fire related, with the most significant category being “struck by falling object” involving “construction materials” and “hand tool - non-powered”.

Approximately half of the PSIs involving inhalation of substances are exposures to H2S.

The average percentage of injury to non-injury, or near miss, PSIs across the entire data set is 18%, indicating more PSI near misses being reported than injury PSIs. There are companies within the dataset that have submitted numerous PSIs that are predominately injury PSIs, indicating a potential opportunity to increase reporting of near miss PSIs. Companies are encouraged to reflect on their own ratio and consider if anything needs to be done to influence reporting.

The most common follow-up actions were training and changed policies. Although this is often an appropriate control depending on the context of the incident, a stronger focus on elimination, substitution and engineering controls is worthy of future consideration.

Improved tracking of PSIs by industry companies would enable more insightful conversations around industry learnings.
1.0 INTRODUCTION & OBJECTIVE

In 2018, it became mandatory for Alberta employers to report potentially serious incidents (PSIs) to Alberta Occupational Health and Safety (OH&S). OH&S has provided some of the resulting data to Energy Safety Canada (ESC), for ESC’s funding industry codes.

This report provides a summary of potentially serious incident data from the Alberta oil and gas industry, for the purposes of understanding common trends and encouraging broader conversations around industry prevention efforts.

Data represents the time period of 2019 Q1 to 2020 Q3.

2.0 REPORTING RATES & TRENDS OVER TIME

The number of reports has dropped over time.

120
Reports submitted between Q1 and Q3 in 2019 by 73 oil and gas employers.

39% DROP

73
Reports submitted between Q1 and Q3 in 2020 by 32 oil and gas employers

Over the last two years, there were about 2,400 registered companies in Alberta’s oil and gas industries with more than one employee. Only a small portion of active oil and gas companies (4%) have submitted PSI reports since the program began. For comparison, about one third, 900 companies, had an incident that became an injury claim with the WCB.
Opportunities exist to encourage more reporting across the entire industry.

**REPORTED POTENTIALLY SERIOUS INCIDENTS, BY QUARTER.**

On average, 1.8 people are exposed to a typical PSI and 18% of incidents resulted in an injury. Companies are encouraged to reflect on their own ratio of near miss PSIs to injury PSIs.

<table>
<thead>
<tr>
<th>Year</th>
<th>Participating companies</th>
<th>PSI report count</th>
<th>People exposed</th>
<th>People injured</th>
<th>Average exposed per PSI</th>
<th>% Injured per exposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>84</td>
<td>142</td>
<td>266</td>
<td>52</td>
<td>1.87</td>
<td>20%</td>
</tr>
<tr>
<td>2020 Q1-Q3</td>
<td>32</td>
<td>73</td>
<td>116</td>
<td>17</td>
<td>1.59</td>
<td>15%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>106</td>
<td>215</td>
<td>382</td>
<td>69</td>
<td>1.78</td>
<td>18%</td>
</tr>
</tbody>
</table>
3.0 REPORTS PER INDUSTRY SECTOR

Reports where both a prime contractor and the employer were involved are double counted.

**PSI REPORTS (INCIDENT RELATIONSHIP BY SECTOR)**

- Oil & gas - upstream: 35%
- Oilsands operations: 29%
- Refining crude oil: 7%
- Oilfield downhole services: 5%
- Oil field maint/construction: 5%
- Well servicing with service rigs: 5%
- Drilling - oil/gas wells: 4%
- Other oil & gas sectors: 11%

**POTENTIALLY SERIOUS INCIDENTS SUMMARY**

- 35% Oil & gas - upstream
- 29% Oilsands operations
- 7% Refining crude oil
- 5% Oil field maint/construction
- 5% Oilfield downhole services
- 4% Well servicing with service rigs
- 4% Drilling - oil/gas wells
- 11% Other
4.0 INCIDENT CLASSIFICATIONS

The graphs below show the most common types of incidents that could have caused serious injuries, and the sources of those potential injuries.

Approximately half of the PSIs are line of fire related, with the most significant category being “struck by falling object” involving “construction materials” and “hand tool - non-powered”.

Approximately half of the PSIs involving inhalation of substances are exposures to H2S.

**TOP TEN INCIDENT TYPES (INCIDENT COUNT)**

- Struck by falling object
- Contact or struck with object, tool, equipment
- Caught in or between object, tool, equipment
- Inhalation of substance
- Exposure to infectious disease or illness (e.g. COVID, SARS)
- Collision between vehicles
- Contact or struck with pressurized air or water
- Contact or struck with running equipment, tool
- Fall to lower level

**TOP TEN SOURCES OF INCIDENT (INCIDENT COUNT)**

- Construction materials
- Motor vehicle
- Hydrogen sulphide (H2S gas)
- Bodily fluid, substance of person
- Hand tool - non-powered
- Industrial vehicle - powered
- Hoist
- Aromatic hydrocarbon
- Ice, sleet, snow
4.0 INCIDENT CLASSIFICATIONS

4.1 SOURCE PER TYPE

The main sources of the top five incident types are listed below.

Note that Struck by falling object and Contact or struck with object, tool, equipment each have a large Other category for source of incident. This is simply due to the large number of potential sources (hoists, machinery, ice, fasteners, etc.); there is no major source of incident that is not shown.

### SOURCES OF THE TOP FIVE INCIDENT TYPES (INCIDENT COUNT)

<table>
<thead>
<tr>
<th>Incident Type</th>
<th>Source</th>
<th>Incident Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Struck by falling object</td>
<td>Construction Materials</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Hand tool - non-powered</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>20</td>
</tr>
<tr>
<td>Contact or struck with object, tool, equipment</td>
<td>Construction Materials</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Hand tool - non-powered</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>25</td>
</tr>
<tr>
<td>Caught in or between object, tool, equipment</td>
<td>Construction materials</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Hand tool - non-powered</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>15</td>
</tr>
<tr>
<td>Inhalation of substance</td>
<td>Hydrogen sulphide (H2S gas)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Motor vehicle</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>5</td>
</tr>
<tr>
<td>Exposure to infectious disease or illness (e.g. COVID, SARS)</td>
<td>Bodily fluid, substance of person</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>10</td>
</tr>
</tbody>
</table>
5.0 INJURED PERSON DEMOGRAPHICS

The graphs below show the demographics of people who were injured during a PSI. PSIs where no people were injured are not accounted for. Some PSIs were not available at the time of writing, and are not included in the charts below.

INJURED PERSON OCCUPATIONS

Central control and process operations, petroleum, gas and chemical processing
- Oil and gas well drilling and related workers and service operators
- Oil and gas drilling, servicing and related labourers
- Construction trades helpers and labourers
- Boilermakers
- Electrical and electronic engineering technologists and technicians
- Steamfitters, pipefitters and sprinkler system installers
- Welders and related machine operators
- Construction millwrights and industrial mechanics
- Contractors and supervisors, oil and gas drilling services
- Other

INJURED PERSON AGE GROUPS

- 20 – 29: 31%
- 30 – 39: 13%
- 40 – 49: 19%
- 50 – 59: 4%
- 60 – 69: 2%
- 14 – 19: 6%

POTENTIALLY SERIOUS INCIDENTS SUMMARY
6.0 INCIDENT FOLLOW-UP

On average, one or two follow-up actions are implemented after a potentially serious incident is reported.

“Training” and “Changed Policy” have been the most common follow-up actions over the last two years.

A stronger focus on elimination, substitution and engineering controls is worthy of future consideration.

## FOLLOW-UP CONTROLS IMPLEMENTED

<table>
<thead>
<tr>
<th>Control Type</th>
<th>2019</th>
<th>2020</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PSI Count</td>
<td>142</td>
<td>73</td>
<td>215</td>
</tr>
<tr>
<td>All Controls</td>
<td>210</td>
<td>156</td>
<td>366</td>
</tr>
<tr>
<td>Training / Re-Training</td>
<td>55</td>
<td>48</td>
<td>103</td>
</tr>
<tr>
<td>Changed Policy</td>
<td>56</td>
<td>32</td>
<td>88</td>
</tr>
<tr>
<td>Applied Engineered Controls</td>
<td>26</td>
<td>32</td>
<td>58</td>
</tr>
<tr>
<td>Eliminated Hazard</td>
<td>36</td>
<td>17</td>
<td>53</td>
</tr>
<tr>
<td>Substituted Equipment</td>
<td>11</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Other</td>
<td>26</td>
<td>20</td>
<td>46</td>
</tr>
<tr>
<td>Controls per PSI</td>
<td>1.5</td>
<td>2.1</td>
<td>1.7</td>
</tr>
</tbody>
</table>
RESOURCES

Energy Safety Canada PSI Program:
https://www.energysafetycanada.com/Standards/Programs/Potentially-Serious-Incidents

Energy Safety Canada PSI Guideline:
https://www.energysafetycanada.com/Attachments/DownloadResource?attachmentGuid=43682b9f-8eb0-41fe-b841-eb784c3f363a&open=True

Alberta OH&S Reporting and investigating Potentially Serious Incidents Bulletin:
https://ohs-pubstore.labour.alberta.ca/download/sample/513

List of oil and gas industry sectors:

GLOSSARY

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
The Alberta definition is not limited to workers and includes other persons, such as the public, that may be impacted as well.

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

WCB
Workers Compensation Board. The mandate of the WCB is to provide compensations to workers who are injured on the job, and help them recover and return to work.

DISCLAIMERS

DATA DISCLAIMER/NO WARRANTY
Energy Safety Canada has prepared this report using data submitted to us from third parties. While we take reasonable efforts to accurately compile and reflect the data submitted to us from the third parties, we have not verified the data and provide no warranty to users of this report. Energy Safety Canada does not guarantee the quality, accuracy, completeness or timelines of the information in this report.

COPYRIGHT/RIGHT TO PRODUCE
Copyright for this document is held by Energy Safety Canada. All rights reserved. Energy Safety Canada encourages the copying, reproduction and distribution of this document to promote health and safety in the workplace provided that Energy Safety Canada is acknowledged. However, no part of this publication may be copied, reproduced, published or distributed for profit or other commercial enterprise without written permission from Energy Safety Canada.