

Oil and Gas Pre-Drilling Season Update session

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Agenda

- 1 Introductions
- 2 Industry Performance
- 3 Industry Incident Overview
- 4 Work-related Deaths/Fatal Claims 2022
- 5 Compliance and Risk Management
- 6 Oil and Gas Initiatives 2023 update
- 7 Questions



Introduction

- Today's session provide a brief update on Oil and Gas Industry Performance
- Overview of 2022 serious incidents in the sector
- Update on OSH Compliance issues in the field
- WSBC inspectional focus areas in 2023 and beyond
- Emerging issues for health and safety in Oil and Gas



Industry Overview

Oil and Gas over all injury rate



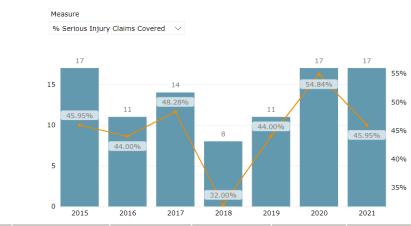
Oil and Gas Injury rate by Classification



Oil and Gas serious Injury Rate and Claims Generated

WORK SAFE BC High Risk Strategies and Industry Initiatives Report

Selected HRS Industry Group: Oil & Gas Industry Initiative 2021-2023



Year	# Serious Injury Claims Covered	% Serious Injury Claims Covered	Employer-Locations inspected	% Employer- Locations Inspected	Person Years Covered	% Person Years Covered
2015	17	45.95%	99	4.4%	10,385.87	56.88%
2016	11	44.00%	105	4.8%	7,286.40	54.01%
2017	14	48.28%	119	5.4%	11,193.86	58.53%
2018	8	32.00%	100	4.5%	7,980.91	51.17%
2019	11	44.00%	90	4.0%	10,025.71	57.80%
2020	17	54.84%	123	5.4%	11,546.25	64.91%
2021	17	45.95%	122	5.1%	14,324.27	60.99%
Total	95	45.45%	758	4.8%	72,743.27	58.15%

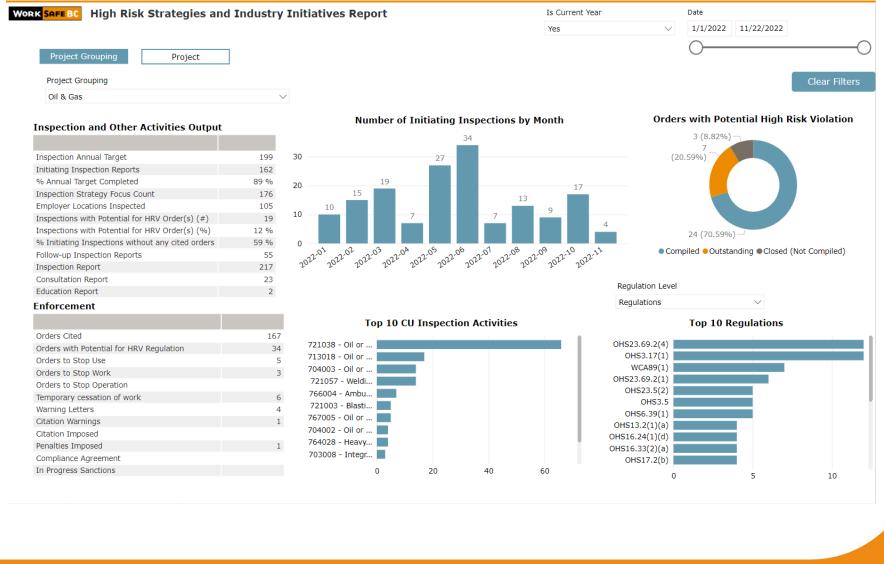
1."Serious injury claims covered" captures the serious injury claims covered via employer operating locations inspected.

2."Person years covered" captures person years covered via employer CUs inspected. It may be higher than actual person years coverage from inspections on operating locations.

3."Employer locations inspected" on this tab include locations from follow-up inspections and uses a different methodology from "Employer Op Loc Coverage" tab. They are not comparable. 4.Since the denominator of is estimated based on starting and ending date of employer locations, "% Employer-Locations inspected" is subject to change in future. **Clear Filters**

Person Years Covered and % Person Years Covered are not displayed for 7020 - Fishing

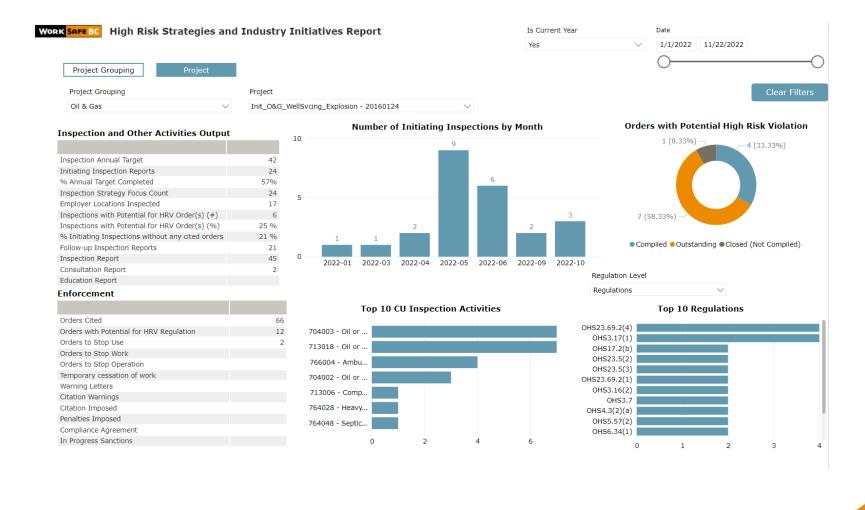
Oil and Gas Inspection Overview



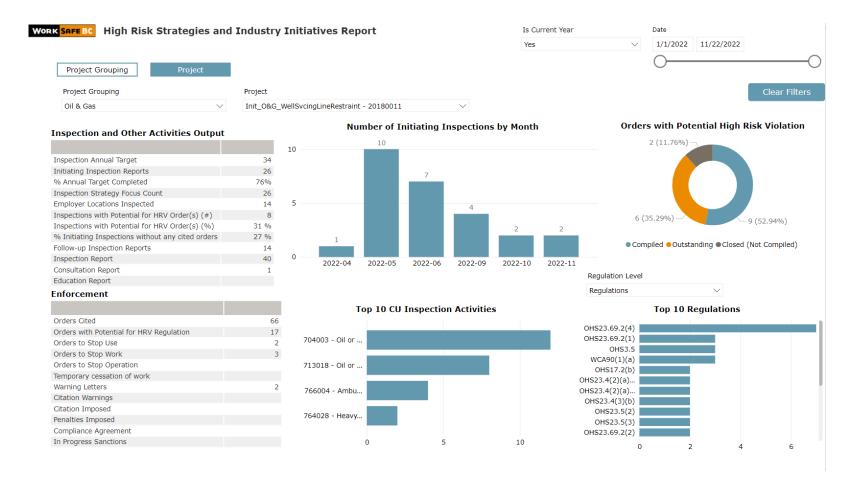
Oil and Gas Inspection Overview Pipeline Construction



Oil and Gas Inspectional Overview Well Servicing Fires and Explosions



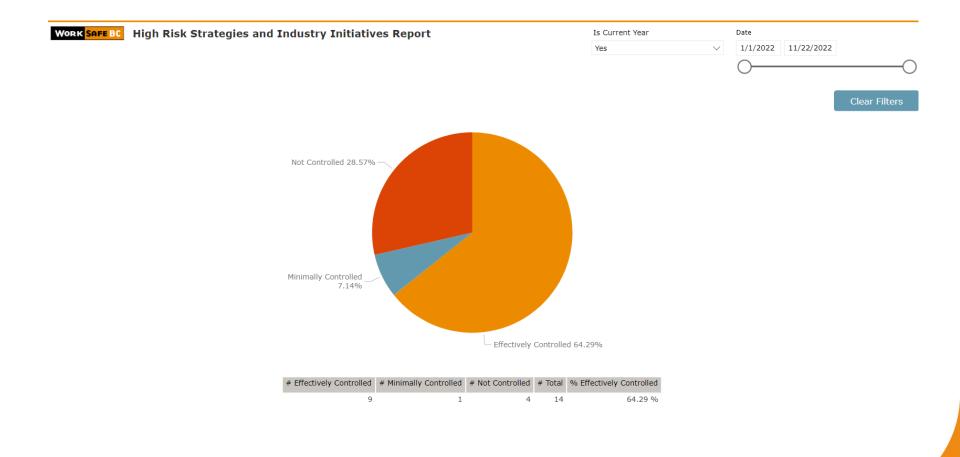
Oil and Gas Inspectional Overview Well Servicing Line Restraint



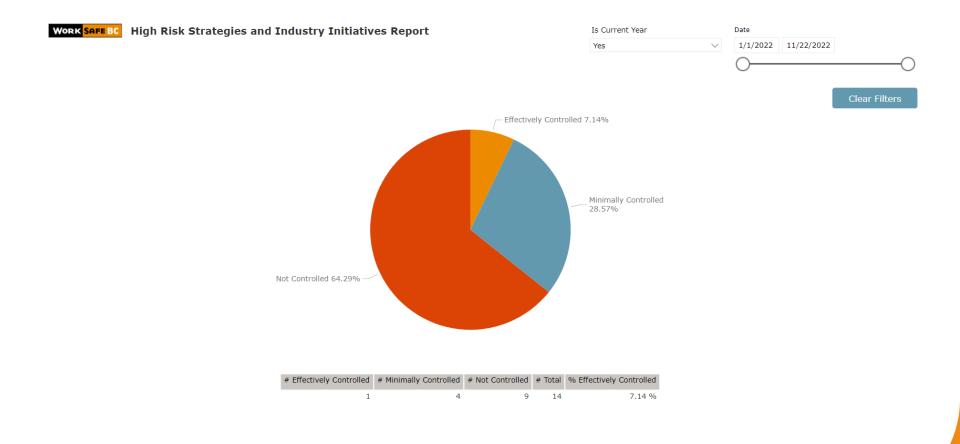
RCA (Risk Control Assessment) oil and gas all sites



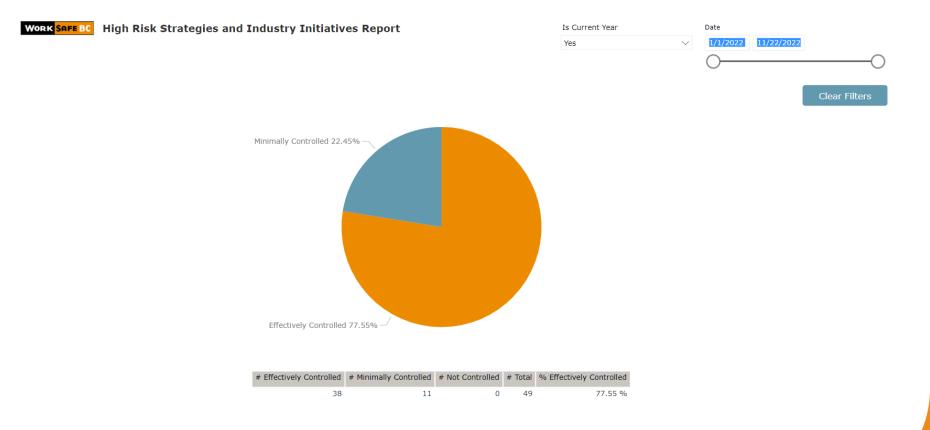
RCA All sub sectors oil and gas / fire and explosion risks



RCA /Oil and Gas all sub sectors / control of Hazardous Energy



RCA/all Oil and Gas sub sectors/slips trips and falls



Incident Overview in Oil and Gas for 2022

Pipelining:

- Worker climbing out of the back of a pickup-steps from the tailgate to the bumper-slips and falls and suffers multiple broken bones.
- Welder and helper are rotating a 450 lb. I beam on the back of a welding truck-beam slips and pins the helper to the ground-suffers numerous chest injuries
- 3) Worker on a pipeline project is exiting their vehicleslips and falls to the ground and breaks their arm.
- 4) Worker on a pipeline project is servicing a light tower-their truck expectantly moves. The worker is caught between the truck and the tower-suffers multiple fractures and internal injuries







Pipelining:

5) Side boom Pipelayer supporting an automatic welding shack, when the side boom unexpectantly moved and rolled down slope (side boom/older unit was not running). Two workers in the shack suffered minor injuries (note-brakes had been set but the **manufactures note** for these older units requires the units to be running when the brakes are set otherwise the brake pressure bleeds off and the unit will roll).

6) Number of incidents with Articulating Rock Trucks (ART) rolling over or running off the right of way or roads

7) Two incidents with Side boom pipelayers doing dual hoist (tandem/critical lifts) large heavy sections of pipe, moving down slope backwards when the units flopped over back wards. Seat belts were in use and no injuries sustained







Drilling Rigs:

8) Worker walking across a spreader beam on a Drilling rig-slipped and fell approximately 6ft assessed by the site medic and **transported to hospital by another worker** (investigation into the medic assessment as the worker had complications at the hospital).

9) Worker at a drilling location was using a hand grinder-the tool kicked back and struck the worker in the face-serious laceration, worker drove themselves to the hospital.

10) Worker drilling rig removing the end of an isolation hose-had residual brine flow into their gloves causing serious burns and blistering to their hands





Oil and Gas General:

11) Production Worker walking a cross an icy lease-falls and breaks two bones in their leg

12) Well Stimulation Operation- workers attempting to repair a leak- an unrestrained section of pipe shifted. A worker fell to the ground striking their head and chest. Suffered serious internal injuries medevac'd to Edmonton for treatment

13) Oil and Gas camp location- workers are moving skid shacks off location. Worker/Swamper walks in between a shack and the bed truck and is pinned between the units. Workers suffers several fractures and is transported to hospital (late reporting to WSBC)

14) Oil and Gas production worker attempting to assist with a crane setup. Moving the counter weight and suffered a pinched hand with the amputation of their thumb.



Oil and Gas Transportation:

15) Workers at an employers shop doing maintenance on a Tank truck (attempting to thaw frozen valve- hauling produced water). Using a tiger torch for this work which resulted in a fire and explosion- Minor injuries to several workers

16) Tank truck driving a resource road and driver lost control and entered into the ditch. The driver suffered serious chest trauma and was transported to hospital

17) Oil and gas construction workers traveling to a work site were involved in a multi vehicle accident in which the Driver was fatally injured (the drivers DL was suspended at the time of the incident).

18) Tank truck travelling north of the Alaska Hwy hauling a load of condensate missed a major bridge and struck a concrete barrier. The truck burst into flames, consuming the truck and driver.







Overview of Fatal Claims Provincially and Oil and Gas

Accepted Fatal Claims for all Industries in BC-end of October 2022

WORK-RELATED DEATHS

Report ID: 3048

Data as of 2022-11-23

2021 YTD Accepted Work-Related Deaths by Category

Year	Total WRD Claim	Traumatic Injury MVA	Traumatic Injury Other	Total	Work-related Disease Asbestos	Work-related Disease Other	Total
2021 YTD	142	14	43	57	46	39	85
2022 YTD	162	23	42	65	56	41	97

Accepted Work-Related Deaths by Year and Month

Month Accepted	2017	2018	2019	2020	2021	2022
January	15	9	14	9	12	26
February	12	14	6	13	12	11
March	14	13	10	17	16	15
April	13	10	9	16	19	13
May	26	12	12	10	18	18
June	11	11	8	20	9	19
July	13	18	12	12	14	15
August	9	9	15	11	15	14
September	7	10	13	10	11	15
October	12	5	16	15	16	16
November	14	12	9	14	14	
December	12	8	16	4	5	
Total	158	131	140	151	161	162

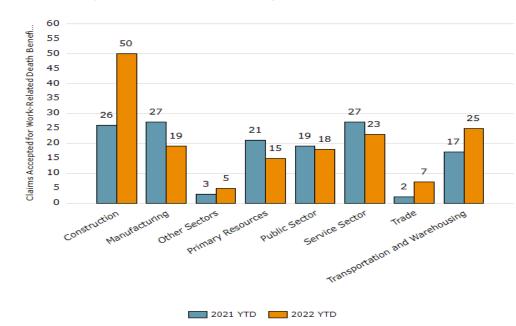
Note: The total number of claims in the above table might be smaller than the number of work-related deaths listed in the work-related deaths description table on the next page as a claim accepted in a prior year and disallowed in the current year will reduce the current year YTD count by one because it will be \Box included \Box in the current year \Box s YTD count as a -1 count.

Accepted Work-Related Deaths include the following two categories:

- Traumatic injury work-related deaths: Include work-related deaths that occur when workers incur injuries during a single event or accident.
- Work-related disease deaths: Include work-related deaths that occur when workers contract a disease as a long-term exposure to a hazardous substance or contact with a disease causing agent; in these cases, workers die after a period of time has passed from the exposure. Some examples of work-related diseases are asbestosis and silicosis, mesothelioma, hepatitis B and C, lung and bladder cancer, Hantavirus, tuberculosis, allergic reactions, and heart attacks.

Fatal Claims by Sector

2021 YTD Accepted Work-Related Deaths by Sector



YTD	Total WRD Claim
2021 YTD	142
2022 YTD	162

	2021 YTD	2022 YTD
Construction (Sector 72)	26	50
Fishing (Subsector 7020)	3	2
Forestry (Subsector 7030 and CUs 732024, 732044, and 763015)	9	9
General Trucking (CU 732019)	5	10
Heavy Manufacturing (Subsector 7120)	15	7
Oil and Gas or Mineral Resources (Subsector 7040)	7	3
Other	68	69
Wood and Paper Products (Subsector 7140)	9	12
Total	142	162

Please note that comparisons of YTD work-related deaths counts should not be used for trending purposes as the claim counts are very small and volatile, resulting in year-to-year changes that are not statistically credible.

The "Other Sectors" category includes accepted work-related deaths from self insured employers (e.g. Deposit Sectors) and work-related deaths not assigned to a Classification Unit.

Where a work-related death had been transferred from one CU to another in a year following the year it was originally accepted, there is a +1 count in the new CU in the year of transfer and a -1 count in the original CU in the year of transfer. The chart does not include counts where CU transfer occurred in the same year. Where a work-related death is disallowed in a year following the year it was accepted, there is a -1 count in respect of that work-related death in the year it was disallowed.

Overview of Fatal Claims data

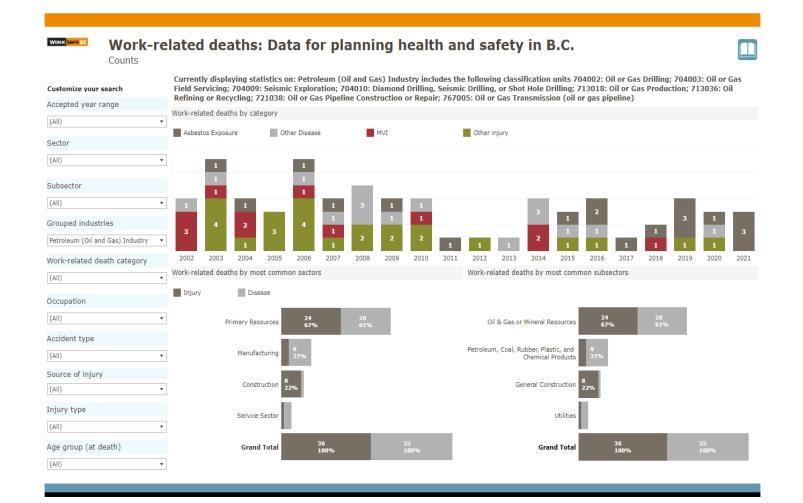


An **accepted work-related death**, previously referred to as an "accepted fatal claim," is an accepted claim for a death that has occurred from a workplace injury.

Key statistics, 2002 to 2021

- 2,994 accepted work-related deaths
- 50% disease
- 95% male workers
- Transport t.. is the most frequent occupation

Overview of Fatal Claims for the Petroleum Industry





Field Issues related to Compliance and Risk Management

Compliance-First Aid Services, Supplies and Equipment and Written Procedures

What is needed based upon a site assessment of the

workplace (5 items to consider) and no less than the Tables in Schedule 3-A (this is not being done or done properly.)

The employer **MUST** also develop written First aid Procedures (**6 items-** displayed in conspicuous locations at the worksite). Note: special procedures are required if air transport is the primary means of transport (*Many ERP's are missing elements*)

See the complete Guidelines for First aid:

https://www.worksafebc.com/en/law-policy/occupational-healthsafety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-03#998F33D891434F2D915491565A68E1F9

-see the conditions for using an MTC in place of a dressing station or First aid room, also an MTC MUST be attached to the vehicle chassis OHSR 3.16-17 & 17.10 / attached to vehicle frame in accordance Manufactures specs. Not being done consistently and properly

-First aid attendants lacking adequate Infectious disease and Blood Borne pathogens ECP's







First Aid Attendants and Immediate reporting



-All First Aid attendants in BC MUST have their BC Occupational First Aid designation if they are functioning as your designated attendant. Recent inspections have found EMR's from Alberta without their BC Designation.

-Immediate reporting of Immediately Reportable Incidents:

What is immediately reportable to WSBC?

68 Immediate notice of certain accidents

(1) An employer must immediately notify the Board of the occurrence of any accident that

(a) resulted in serious injury to or the death of a worker,

(b) involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation,

(c) involved the major release of a hazardous substance,

(d) involved a fire or explosion that had a potential for causing serious injury to a worker, or

(e) was an incident required by regulation to be reported.

Some questions that come up? What does immediate look like? How much is a major release? How serious is a serious injury? What do I do if I am not sure that the incident is immediately reportable?

Occupational Disease – ECP's

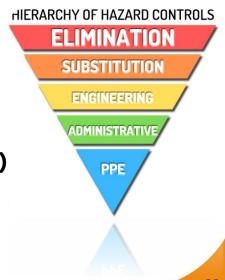
-Occupational Disease continues to expand in impacts and scope (occupational Disease fatalities continue to eclipse traumatic injury claims each year)-As of October 2022= 162 fatalities- 65/40% traumatic injury and 97/60% Disease

-Areas for monitoring and ECP development: Silica, Lead, Hydrocarbon based drilling fluids, Diesel Exhaust, Benzene, Mercury, Hearing Loss, NORMS, H2S and all designated substances require ECP's (sensitizers like SPC 888 for pipe coating)

<u>-Welders & welders helpers need to be wearing</u> <u>appropriate respiratory protection (selection criteria)</u> <u>IRAC Monogram 118-2018 all welding fume is human</u> <u>carcinogen</u>

-MSI risk assessments and risk control OHSR 4.47-53 (Part 5.48-5.59 for an outline of what is required around site surveys, monitor and development of ECP's) -What's new and emerging- *Nano particles* (both dry and fluid immersed i.e. Nano Polymers in fracking fluids- any assessment of health risks?)





Compliance- Contractor Service Providers brought to site

-**Producers:** What is in place to ensure that when you bring contract services to site that they are compliant with the OHSR and WCAct requirements? and are you providing adequate hazardous product SDS information for the workers conducting the work at your sites?

Common areas of deficiency include:

-High pressure line restraint- not adequately anchored at both ends, not restraining the full length of the piping, mix and matching systems without engineering to show compatibility of the systems, lack of documentation available, from the Producer as to the capability of the wellhead as an anchor, for workers for the installation and inspection of the restraint systems, especially when there are <u>mixed-matched systems</u>, Engineers not using proper force calculations (must be based upon upset conditions not operating conditions).

-Inadequate consideration of pressures-trapped in valves and lines (failing to ensure that these lines are restrained) and failure to use remotely activated valves where required

WCAct 24,25, OHSR 23.69, 23.39, 23.12







Compliance issues-General

Texas Camps reappearing in BC- Industrial Camp Act requires that all workers performing food service are properly trained and practice Food Safe (recent out breaks of Norvo virus evidence this need for food handling, water, cleaning etc.) The industrial Camp Act also requires each camp to have a supervisor that is responsible for the monitoring and enforcement of the Industrial camp standards in BC (a trained person).

Mobile equipment and compliance with OHSR 16.24 (1)(a-f) Alternate means of escape from the cab

-use of purpose-built window breaking devices as a means of escape? Guideline G16.24



Compliance issues-General

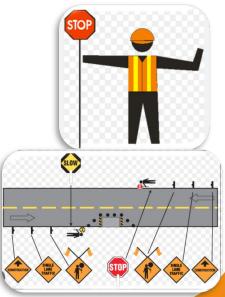
Confined Space Entry- Compliance with OHSR Part 9. Common missing parts include- Inadequate assessments of the CS (i.e. Mud tanks on drilling rigs), hazard classification, lack of a qualified person doing the assessment, trained workers to enter, CSE program not available. (see OHSR Part 9)

Traffic Control on Resource Roads- not using the proper RR channels for traffic control (using private channels not Licensed for the Road)

Compliance with Part 18 new traffic control requirements- failing to do proper risk assessments to develop traffic management plans for the site, lack of proper signage (rig moves and sandwich boards), training of workers in the new traffic control requirements (see Part 18)









Compliance issues-Seismic

Rehabbing of old seismic Lines-operation was found pushing trees over the line with an excavator (hanging over the line). Workers were then crawling into the maze of trees and attempting to plant new trees along the line. (issues- partially felled trees over hanging the lines, emergency access and egress in the event of an injury-Stop work order issued)



Seismic (oil and gas hand falling)-are the hand fallers being supervised to the level of risk associated with the work being done? (OHSR 26.22.1)

5 new videos for this area (why is it important and what does it need to look like)

Supervision in Manual Falling: Champions for Change | WorkSafeBC's - YouTube





Compliance Issues- Side boom Pipelayers hoisting on slopes

The two recent Pipelayer flop over incidents have outlined the need for specific load charts for side booms when working on steep slopes (Load charts from the Manufactures or a Qualified Professional Engineer). Steep slopes can be encountered on many projects around the province. The lifting capabilities on all slopes must be defined by the Equipment Manufacturer or those of a Qualified Professional Engineer. These modified load charts must consider slope assessment including terrain and the condition of the right of way, type of surface, direction of travel, load height, distance of load from the machine, how load swing will be minimized, training of the equipment operators and hoisting supervisors (including requirements for tandem and critical lifts: Link to the WSBC Pipelayer bulletin: Fore-aft rollover hazard while using side-boom pipelayers on slopes WorkSafeBC



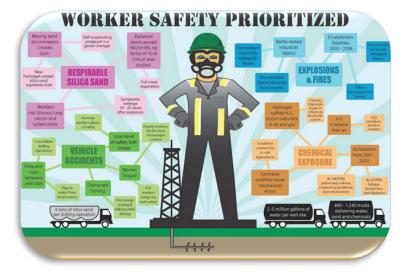
Additional Areas to Consider



-Mental Health Safety-fastest growing area of Occupational Health concerns and issues, what are you doing to support your workers especially in these trying times?

Oil and Gas High Risk Initiatives 2021-2023

Updates for 2023



Oil and Gas Initiative 2021-2023

What will WSBC be focusing upon over the next year and into the future?



Oil and Gas 2021-2023 Initiative Focus

Problem

The Oil and Gas Initiative is designed to focus on areas of concern within the oil and gas sector that is generating their serious injury claims.

Primary goal

Prevent serious and fatal injuries in the following areas: (adding a focus upon the reduction of time loss injuries which will include a strong emphasis upon MSI injury reduction at all sites)

-Fire and explosions across the oil and gas sector, with particular emphasis upon well servicing and waste disposal

-Control of hazardous energy

-Pressure management/Control which includes flow piping systems

-Manual free falling (Supervision to the level of Risk)

-Pipeline construction (mechanisms of injury)

-Occupational exposures



Oil and Gas 2021-2023 Initiative Focus Continued

Focus

Last year of the 3 year time frame

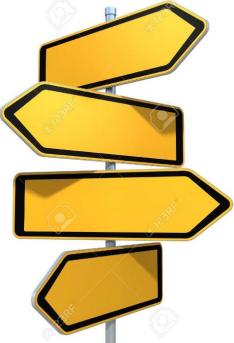
-Conduct targeted inspections within the focus areas (the inspections will include Risk Management Basics-risk assessment and effective controls)

-Continuation of the Process Safety Initiative in Oil and Gas (Refineries, Mid stream processing and addition of LNG Production and loading facilities)

-Support the development tools and resources relating to safe work procedures in high-risk operations

-Support and partner with Energy Safety Canada and industry trade associations to see that their initiatives align with mitigation measures relating to strategic focus areas

-Deliver key messaging and information to employers and workers through the HSA and sector associations



Questions?

