



MLITSD Inspection Initiative: Healthy Workers in Healthy Workplaces – Occupational Disease

October 13, 2022

1 888 730 7821 (Toll free Ontario)
workplacesafetynorth.ca



Welcome to the webinar:

MLITSD inspection initiative on Healthy Workers in Healthy Workplaces – Occupational Disease

- Thank you for joining us!
- We will be getting started at **10:00 am ET**
- Please use the **Q&A** at the bottom of your screen for speaker questions and we will answer them at the end of the webinar.
- Please use the **chatbox** for commentary or technical questions.
- A link to the webinar recording, a copy of the presentation slides, and reference material will be emailed to registrants within a few days.

Webinar co-hosts

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About Workplace Safety North

- Workplace Safety North (WSN) is one of four sector-based health and safety associations in Ontario, and the only one headquartered in the north.
- WSN provides province-wide, government-approved workplace health and safety services for mining and forest products sectors, as well as for businesses and communities across northern Ontario.
- With health and safety specialists located across the province, WSN and its legacy organizations have been helping make Ontario workplaces safer for more than 100 years.
- For more information, visit workplacesafetynorth.ca.

Agenda

- Introduction
- Focus of the initiative and importance
- What MLITSD Health and Safety Inspectors will be looking for during the healthy workers in healthy workplaces initiative focused on occupational disease
- Pertinent Legislation
- Resources (MLITSD and WSN)
- Q & A

Disclaimer

- The purpose of today's presentation is to assist the workplace parties in understanding their obligations under the Occupational Health and Safety Act (OHSA) and its regulations. It is not intended to replace the OHSA or the regulations, and reference should always be made to the official versions of the legislation.
- It is the responsibility of the workplace parties to ensure compliance with the legislation and the presentation does not constitute legal advice. If you require assistance with respect to the interpretation of the legislation and its potential application in specific circumstances, please contact your legal counsel.
- Ministry of Labour, Immigration, Training and Skills Development (MLITSD) inspectors will apply and enforce the OHSA and its regulations based on the facts as they may find them in the workplace. This presentation does not affect their enforcement discretion in any way.

Healthy Workers in Healthy Workplaces - Occupational Disease

This initiative is taking place in all sectors (i.e., construction, health care, industrial and mining).

Phase 1 - Education, Outreach and Awareness – October 3 to December 30, 2022

- Compliance support and awareness campaign with our health and safety partners

Phase 2 - Inspections Blitz – October 31 to December 30, 2022

- Focused inspections campaign

[Provincial health and safety compliance initiatives in 2022-23](#)

Why is the MLITSD Conducting an Occupational Health Initiative?

- 87% of all fatalities within the Ontario mining sector are caused by fatal occupational diseases.
- Between 2011 and 2021, 179 workers were reported as having died as a result of an occupational disease in the mining sector.
- The Mining Health, Safety, and Prevention Review, completed in 2015, identified occupational disease, particularly those related to airborne hazards, as one of the five key issues that posed the greatest risk to worker health and safety.

Why is the MLITSD Conducting an Occupational Health Initiative?

- To raise the awareness of employers, supervisors and workers about occupational disease so that they better understand the risks associated with exposures to chemical, biological, or physical hazards, and the use of proper controls to reduce or eliminate the hazard.
- To raise awareness of the importance of controlling airborne hazards such as diesel particulate matter (DPM), silica, radon and other health hazards in mines and mining plants.
- To promote healthier workplaces through baseline and routine testing, and control of airborne hazards in mines and mining plants.
- To ensure the workplace parties are in compliance with the OHS Act and its regulations.

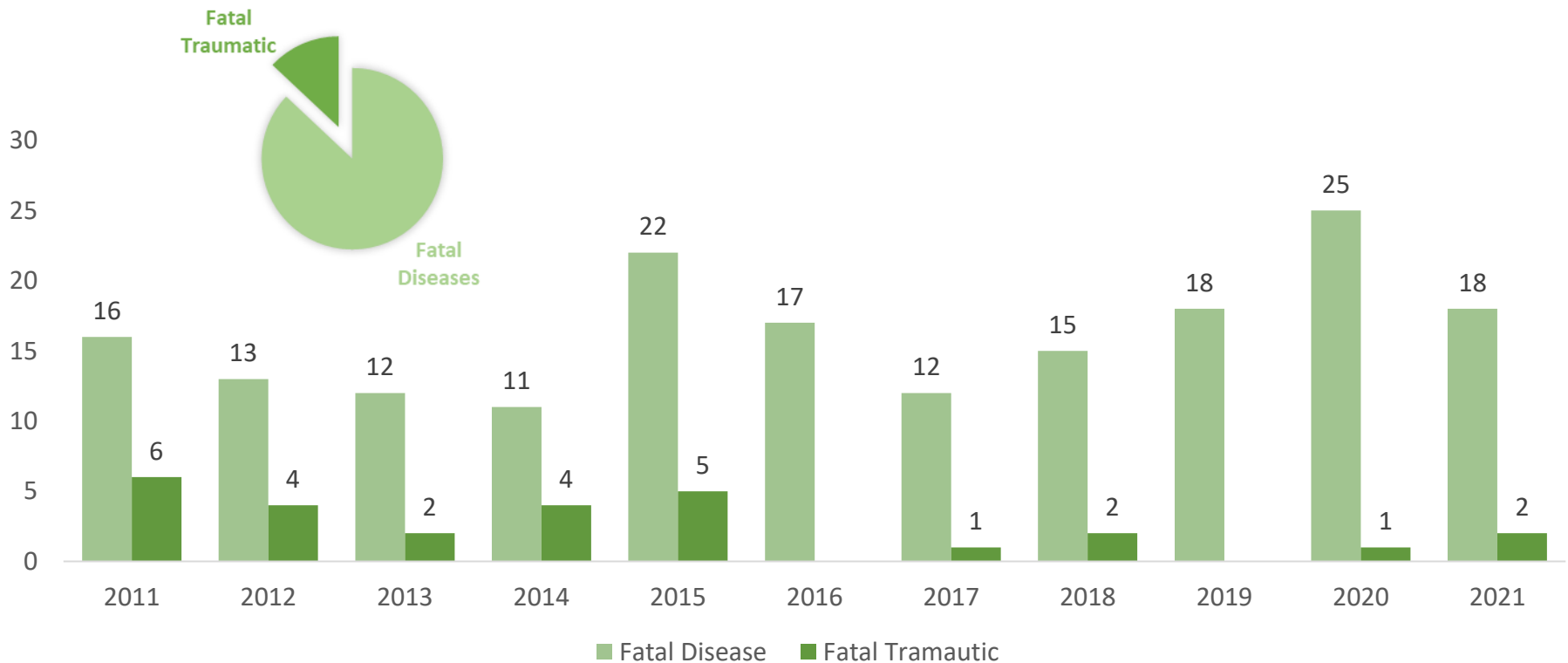
What to Expect During an Inspection

- A Ministry Inspector can enter in or upon any workplace at any time without warrant or notice.
- When a Ministry Inspector arrives at a workplace, they will introduce themselves, explain the reason for the visit and ask to have a worker and management representative accompany them during the inspection.
- The Ministry Inspector may conduct an administrative review and a physical inspection of the workplace.
- Ministry Inspectors will enforce the OHSA based on the facts observed in the workplace at the time of the visit.
- The Ministry Inspector will leave a Field Visit Report which will include reasons for the visit, details of any findings, and any corrective compliance measures if required.

Ontario Mining Sector

WSIB Allowed Fatal Claims
by Allowed Year: 2011-2021

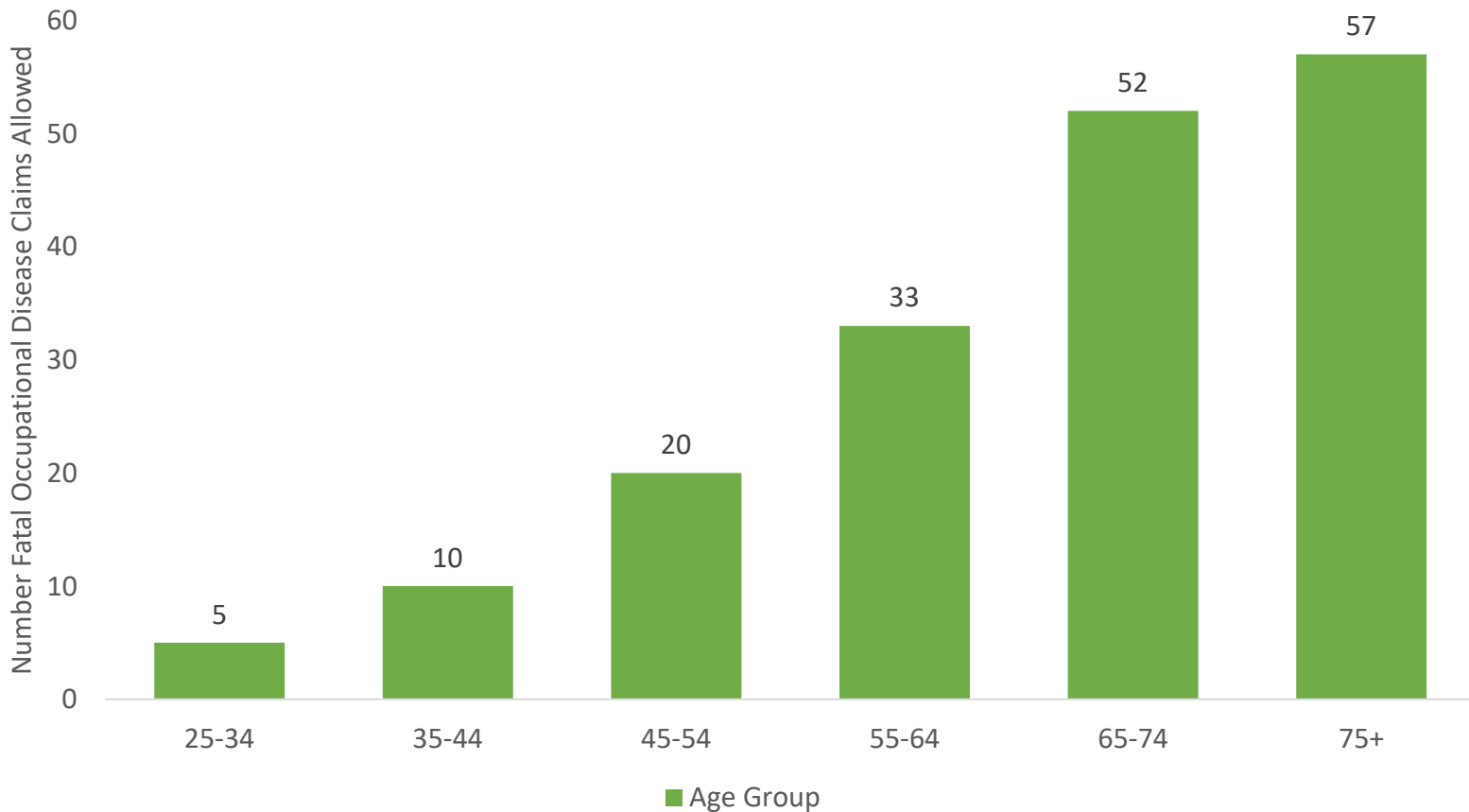
87% of all fatalities within the Ontario mining sector are caused by fatal occupational diseases.
Between 2011 and 2021, 179 workers died as a result of an occupational disease.



Ontario Mining Sector

Allowed Fatal Occupational Disease Claims by Age Group
by Allowed Year: 2011-2021

61% of occupational disease fatalities occurred among 65+ y.o. population.

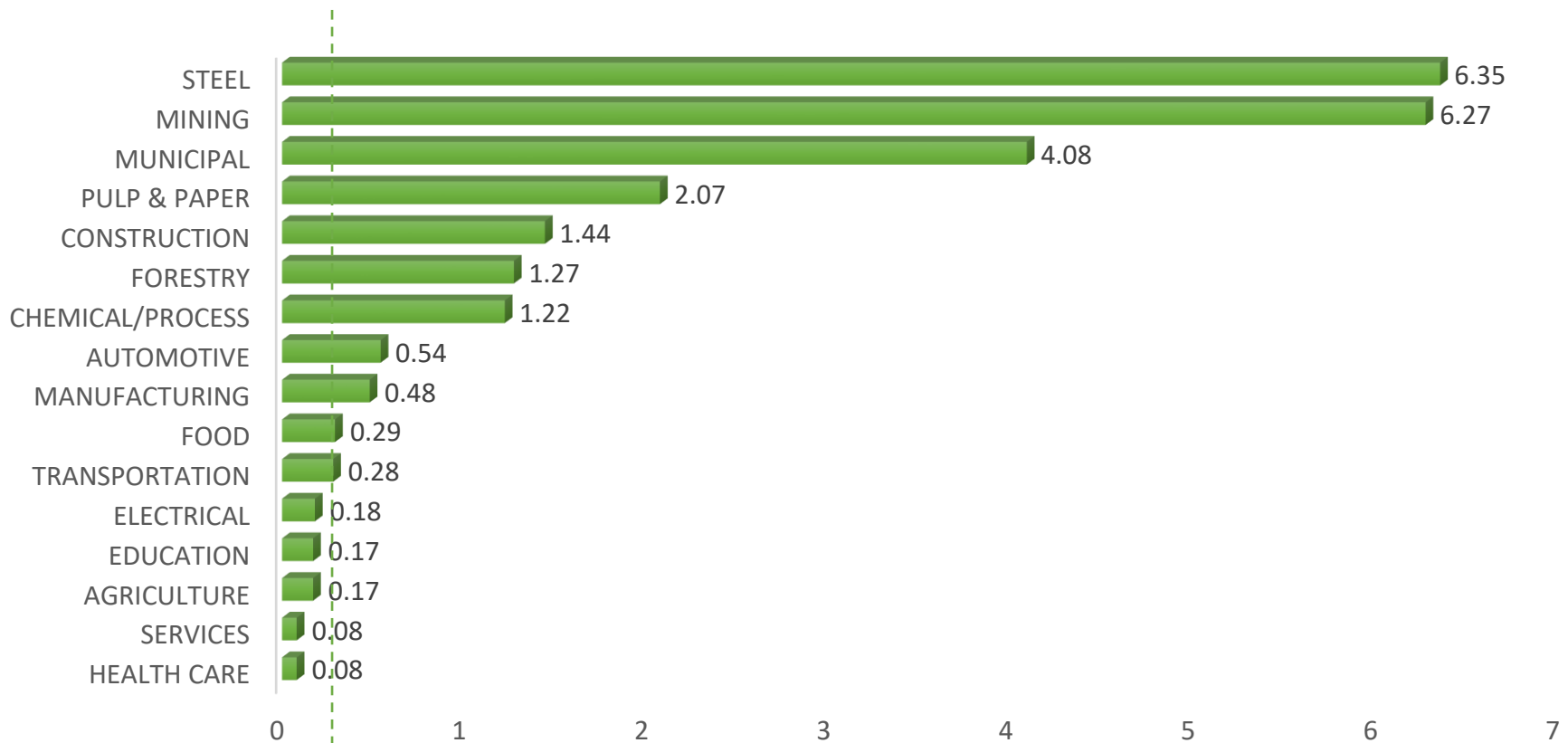


Source: WSIB, EIW, Claim Cost Analysis Snapshot, as of Mar. 31, 2022.

Ontario Mining Sector

Disease Fatal Rate Average per 10,000 FTE's
by Allowed Year: 2011-2021

Mining is the second largest (after Steel) industry in Ontario by disease fatal rate per 10,000 FTE's.

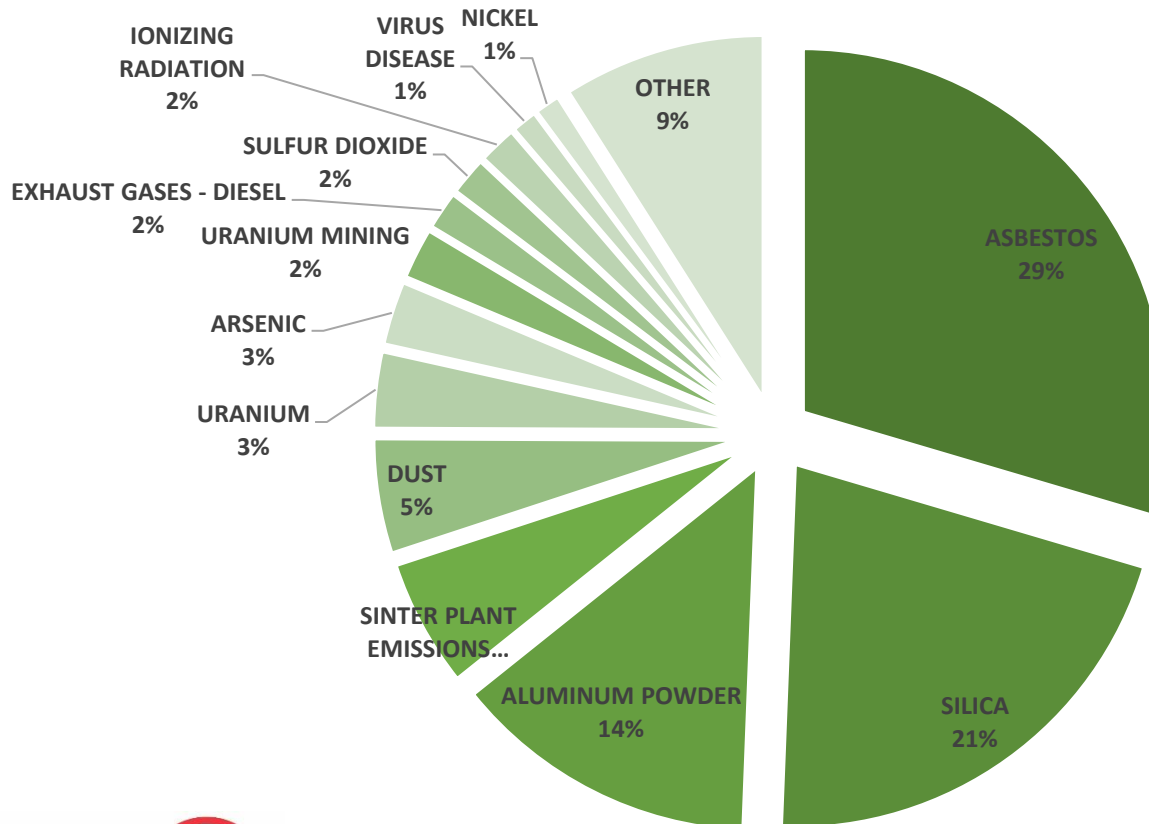


Schedule 1 firms average 0.47

Ontario Mining Sector

Allowed Fatal Occupational Disease Claims Registered
by Allowed Year: 2011-2021

Top Occupational Disease Death Causal Agents
Asbestos and Silica are two major causing agents responsible for half of occupational disease deaths.



Ontario Mining Sector

Allowed Fatal Occupational Disease Claims
by Allowed Year: 2011-2021

Top 5 Fatal Disease Claims:

- Malignant neoplasm of trachea, bronchus, and lung – 63 (35%)
- Chronic airway obstruction – 35 (20%)
- Malignant neoplasm of pleura - 21 (12%)
- Silicosis – 10 (6%)
- Paralysis agitans (Primary Parkinsonism) – 7 (4%)

Ontario Mining Sector

Allowed Occupational Disease Claims

By Allowed Year: 2011-2021

Top 5 Non - Fatal Disease Claims*:

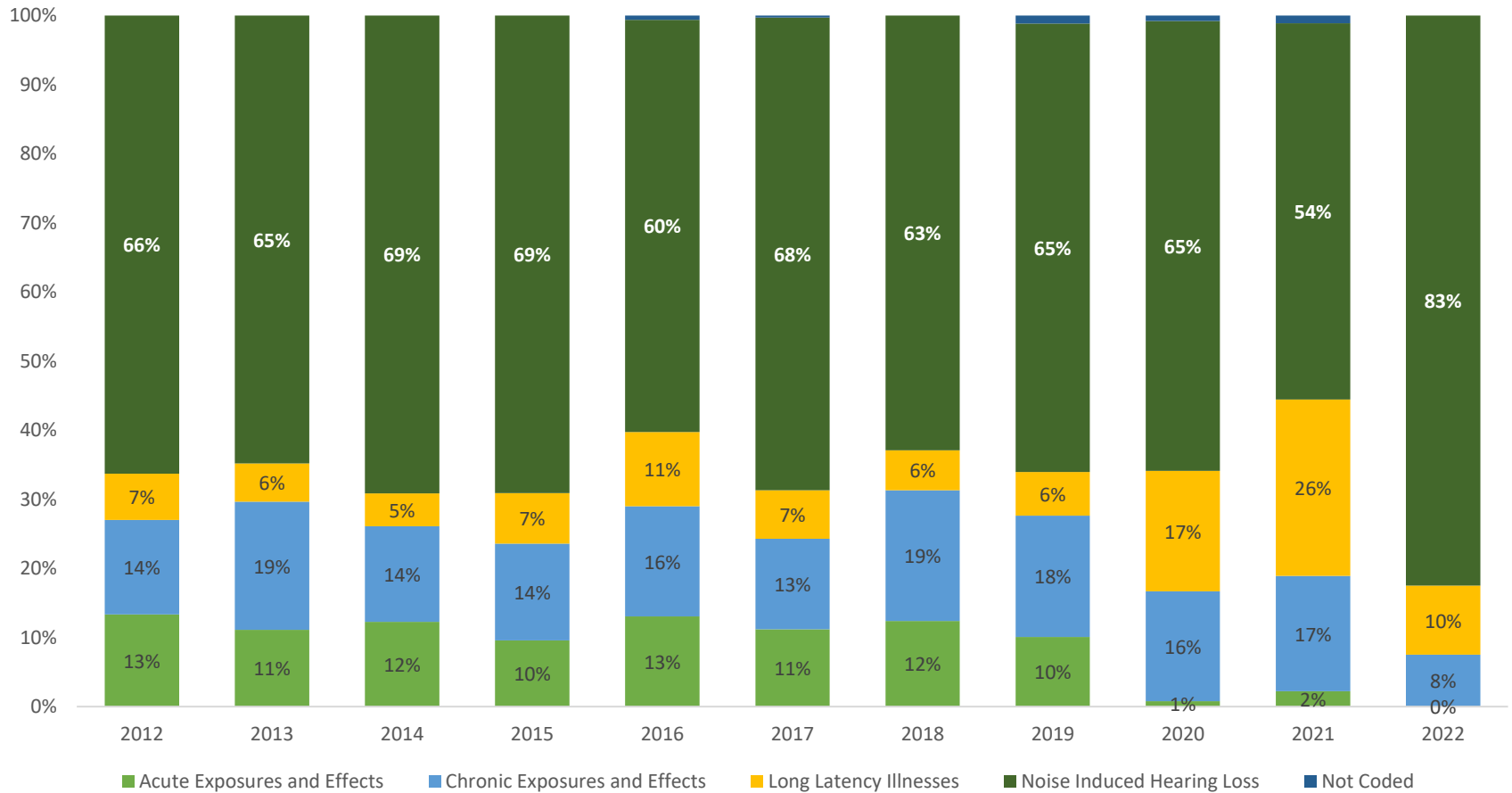
- Noise Induced Hearing Loss - 1,560 (59%)
- Hand Arm Vibration Syndrome – 245 (9%)
- Viral Infection – 180 (7%)
- Raynaud's Syndrome – 77 (3%)
- Exposure to Chemical Agents – 44 (2%)

*Includes both lost and non-lost time claims

Source: WSIB, EIW, Claim Cost Analysis Snapshot, as of Mar. 31, 2022.

Ontario Mining Sector

Allowed Occupational Disease Claims by Allowed Year: 2012-2021



Industrial Hygiene Program



Occupational Health Hazards

Health hazards fall into the following categories:

Chemical:

- Harmful chemical compounds in the form of solids, liquids, gases, vapors, mists, dusts, fumes, and fibres can exert toxic effects through inhalation (respiratory), skin absorption, ingestion, and injection.
- Routes of exposure include contact (dermal), ingestion, injection, and inhalation (respiratory is by far the most significant route of entry into the body)

Physical:

- These include noise, radiation (ionizing and non-ionizing), vibration, and temperature

Biological:

- These include bacteria, viruses, fungi and other living organisms that can cause acute and chronic infections.

Occupational Health Hazards

Chemical:

- **Dust/Fibres:** silica, nickel, gypsum, asbestos etc.
 - Example: Silica (or nickel, lead) dust control program
- **Fumes:** diesel, welding, blasting
 - Example: Welding fume control program
- **Gases:** after blast, diesel emissions, strata (CH₄, CO, CO₂, H₂S, SO, SO₂, NOX, etc.)
 - Example: Re-entry protocol, diesel emissions control program, etc.
- **Mist, Fogs and Vapours:** fuel, solvents
- **Smoke:** after blast, poorly maintained diesel equipment
- **DPMs:** diesel particulate matters from diesel equipment
 - Example: Diesel emissions control program

Occupational Health Hazards

Physical:

- **Noise:** Noise abatement program
- **Radiation:** Radon progeny (daughters) in uranium mines and non-uranium mines
- **Vibration:** Hand-arm vibration syndrome (HAVS), foot-transmitted vibration (FTV), whole body vibration.
- **Thermal (heat & cold) Stress:** Heat Stress and Cold Stress lead to physiological response and safety issues

Occupational Health Hazards

Biological:

- **Infectious Agents:** Viruses, bacteria, fungus
- **Bites, Stings and Toxins:** Lyme disease, West Nile
- **Allergy and Sensitization:** Allergic reaction, breathing from moulds, pollen, insects, etc.

Respiratory Hazard Focus

Some examples of key occupational health hazards that can be found in the workplace, and their associated activities, include but are not limited to:

- **Blasting gases:** carbon dioxide, carbon monoxide, oxides of nitrogen, ammonia, and sulfur dioxide
- **Diesel emissions:** elemental/organic carbon, carbon monoxide, nitrogen dioxide, sulfur dioxide
- **Dust:** silica dust and general dust from drilling, mucking, rock breaking
- **Metals:** sulfur dioxide, dust from refining
- **Fumes:** welding fumes from the cutting and heating process

Respiratory Hazard Focus

Some examples of key occupational health hazards that can be found in the workplace, and their associated activities, include but are not limited to:

- **Hazardous chemicals:** cleaning agents and preservatives are a serious concern for health and community care workers
- **Designated substances:** arsenic, asbestos, isocyanates, lead and silica are found in mines, mills and smelters
- **Radon:** requirement to test at certain frequencies depending on concentration measured and to evaluate when to sample based on changing conditions.

Initiative Focus

Ventilation Systems - Inspectors will check to ensure employers meet the ventilation requirements in Reg. 854, including but not limited to: ventilation where diesel equipment is operating underground, auxiliary ventilation in work headings, dilution or removal of contaminants to prevent worker exposure above the prescribed limits, accurate plans and records of ventilation system.

Diesel Exhaust - Inspectors will check that diesel equipment is being properly maintained; they will also check to see that the required diesel emission testing is performed as per Reg. 854.

Mine Exposures - Inspectors will check that Occupational Exposure Monitoring, including personal sampling, is completed in areas of known or expected exposures. They will also check to ensure that assessments and control programs are in place where required and have been developed in consultation with the Joint Health and Safety Committee or Worker Health and Safety Representative, if any.

Assessments for designated substances - Inspectors will check designated substances control programs including arsenic, asbestos, isocyanates lead and silica, reagents etc.

WHMIS - Inspectors will check for employee training and hazardous materials storage and handling practices.

Initiative Focus

Inspectors will check:

- The completion of risk assessments, including when there are changes in the process or increases in production that may affect the assessments being used, so that a re-assessment would be needed
- There is adequate ventilation in underground mines to eliminate or reduce exposure to airborne hazards
- That workers are wearing prescribed PPE for specific tasks
- That workers are trained to recognize occupational disease hazards and can select, use and care for PPE as prescribed (i.e. respirators, etc.).
- That employers are following WHMIS 2015 including proper labelling and worker education.
- That workers have been trained and there are appropriate measures and procedures for the safe handling of hazardous chemicals including disposal and managing of spills.

Initiative Focus

Inspectors will check:

- That control programs are operating as prescribed including:
 - Engineering controls, work practices, hygiene facilities
 - Methods and procedures to monitor airborne concentrations and worker exposure
 - Worker & Supervisor training, Medical Surveillance, etc.
- That employers are sampling workers who may be at risk of exposure, including:
 - Does the sampling program match what is in the control program?
 - How many occupations are part of the program?
 - What is the frequency of personal and area sampling?
 - Is there any description of activities during worker sampling?
 - What happens if the limits are exceeded?
 - Are there any other substances (in addition to designated substances) that are sampled (nitrogen dioxide, carbon monoxide, cyanide, SO₂)?

Designated Substance Control Program

A designated substance control program should include but not limited to the following:

- Assessments for the potential for exposure to the designated substance;
- Methods and procedures for monitoring and determining the concentration including personal exposure records;
- Training program for supervisors and workers on the health effects and measures and procedures required under the control program;
- Medical surveillance;
- Roles and responsibilities; and
- Control measures following the hierarchy of controls including engineering controls, work practices, hygiene facilities and personal protection equipment such as respirators in order to limit a person's exposure.

Compliance and Legislative Focus

Occupational Health and Safety Act (OHSA)

Sections 25, 26, 27, 28 set out the general duties of all employers, supervisors, and workers, including those related to provision of information and instruction, use of personal protection equipment (PPE), etc.



Compliance and Legislative Focus

Regulation 854 (Mines and Mining Plants)

Section 5.1-5.3 requires all employers to conduct risk assessments of the workplace for the purpose of identifying, assessing and managing hazards, and potential hazards, that may expose a worker to injury or illness.

Under these provisions, an employer must develop and maintain, in consultation with the joint health and safety committee and health and safety representative, if any, measures to eliminate, where practicable, or to control, where the elimination is impracticable, the hazards, and potential hazards, identified in the risk assessment associated with agents that contribute towards occupational disease.

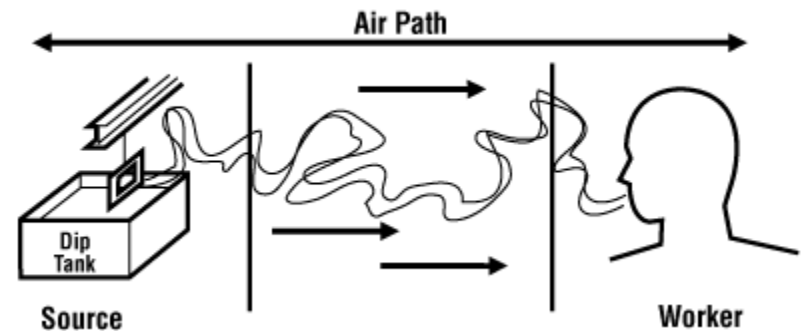
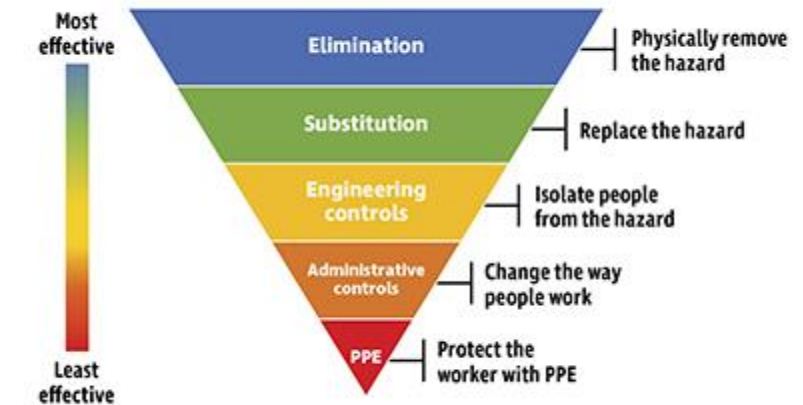
Once hazards are identified, workplaces need to determine the appropriate controls using the hierarchy of controls to prevent or mitigate the risk associated with the hazard. Controls can be procedures, physical equipment or objects, or systems.

Eliminating or Mitigating these Hazards

Methods of eliminating or mitigating these hazards include:

- Follow the hierarchy of controls including engineering controls that prevent worker exposure to chemical or biological hazards in underground and surface mines
- Providing adequate ventilation that eliminates or reduces exposure to airborne hazards to within acceptable limits
- Worker training in recognition of occupational disease hazards and selection, use and care of personal protective equipment (PPE) as prescribed

NIOSH HIERARCHY OF CONTROLS



Compliance and Legislative Focus

Regulation 854 (Mines and Mining Plants)

Section 12 sets out the requirements for the use of personal protective equipment.

Section 182 sets out that diesel powered equipment shall not be used in an U/G mine unless a form from the Ministry has been completed and an employer shall ensure that the undiluted exhaust emissions contains less than 600 ppm of CO.

Section 183 requires employers to maintain records/a chart of procedures relating to ventilation where diesel equipment is operating.

Section 183.1 sets out the minimum airflow requirements where diesel equipment is operating, and goes further to say that the flow of air must reduce the concentration of toxic substances to prevent exposure of a worker to a level in excess of the limits prescribed under section 4 of Regulation 833.

Subsection 183.1(5) prescribes limits of total carbon and elemental carbon.

Section 183.2 sets out requirements for the testing for the volume of air flowing and quality of air in mines and testing of undiluted exhaust from diesel-powered equipment.

Compliance and Legislative Focus

Regulation 854 (Mines and Mining Plants)

Section 252 sets out the requirements for ventilation for mining plant buildings.

Section 253 sets out the underground ventilation system requirements.

Section 254 & 255 sets out the requirements for auxiliary ventilation and non-ventilated areas.

Section 257 and 258 sets out the requirements for using water for dust control in an underground mine.

Section 266 requires that dust or other material that is likely to cause a hazard by becoming airborne shall be removed with a minimum of delay.

Sections 267, 268, & 269 include requirements for: annual surveys; assessments and monitoring of hazardous elements and compounds; and chemical records and records of injury.

Section 286 sets out requirements for make up air supply and recirculated air.

Sections 287-293 includes requirements to monitor and manage radon emissions.

Compliance and Legislative Focus

Other applicable regulations

Regulation 833 Requires the control of exposure of workers to biological or chemical agents; sets out occupational exposure limits (OELs) and requires that employers reduce risks of these hazards using a hierarchy of controls.

Regulation 490 Sets out requirements for certain designated substances; including employer requirements to prevent workers exposure to these substances and to provide information related to training and control of these hazards.

Regulation 860 (WHMIS) Sets out requirements for labels, safety data sheets and worker education on hazardous materials, and worker training on safe use, storage, handling and disposal of a hazardous material, and emergency procedures.

Regulation 381 Sets out the requirements to protect workers from exposure to hazardous sound levels.

Regulation 420 Sets out the requirements for providing written notification of occupational illness.

Additional MLITSD Resources:

- [Occupational Health and Safety Act](#)
- [Regulation 854 Mines and Mining Plants](#)
- [Regulation 490 Designated Substances](#)
- [Regulation 833 Control of Exposure to Biological and Chemical Agents](#)
- [Regulation 860 Workplace Hazardous Materials Information System \(WHMIS\)](#)
- [Regulation 381 Noise](#)
- [Regulation 420 Notices and Reports Under Section Sections 51 to 53.1 of the Act](#)
- [Mining Health and Safety Prevention Review](#)
- [OHS Guideline](#)
- [Risk Assessment and Management for Mines and Mining Plants Guideline](#)
- [Sampling for Diesel Particulate Matter in Mines Guideline](#)
- [Testing Undiluted Exhaust in Underground Mines Guideline](#)
- [Post-blast Examinations in Mines Guideline](#)
- [Current occupational exposure limits for Ontario workplaces under Regulation 833 Guideline](#)
- [Noise Guideline](#)
- [WHMIS Guideline](#)
- [Guide to Designated Substances in the Workplace](#)

Information and Resources

- [Mining Workplace Environment Checklist](#) (2015, 72 pg. Free Download)
- [Respiratory Hazards – Mining](#) (short video on respiratory hazards in mining)
- [Free training resources on diesel emission hazards for all industries](#)
- [Diesel Exhaust Infographic - Health Effects](#) (free download)
- [Infographic: Proper use of respirators in mines and mining plants](#) (free download)
- [WSN - Auxiliary Mine Ventilation Manual](#) (version 1.6, 182 pg.)
 - Manual is intended to provide overview of Auxiliary ventilation design, effective operation and management of auxiliary ventilation systems primary for underground hard rock operations.
- [WSN Industrial Hygiene, Radon and Ventilation Assessment](#)
 - WSN offers a variety of mining-specific health and safety assessments for a fee such as air sampling, radon and ventilation.

Information and Resources

- [Mining Common Core for First Line Supervisors-Mining](#)
- [Supervisor Common Core: Occupational Health & Industrial Hygiene \(mining\)](#)
 - [Supervisor Common Core: Mine Ventilation - Underground \(mining\)](#)
- [Prevent Occupational Disease](#)
 - Resources on different Occ Disease including respiratory hazards
- [Dust Control Handbook for Industrial Minerals Mining and Processing](#)
 - CDC-NIOSH 2nd Edition March 2019 (free download)
- [Good Practice Guidance on Occupational Health Risk Assessment-ICMM](#)
- [CCOHS – WHMIS 2015](#)
- [CCOHS – Chemicals and Materials](#)
- [CCOHS – Physical Agents](#)
- [CCOHS – Biological Hazards](#)
- [CCOHS – Hierarchy of Controls](#)
- [CCOHS – Prevention and Control of Hazards](#)

Thank you for attending today's webinar and helping make workplaces safer.

Questions?

Contact Workplace Safety North

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