



Workplace
Safety North



How to prepare for Ontario health and safety inspection blitz on battery electric vehicle and mobile diesel equipment hazards

December 16, 2020

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



Welcome to the webinar: Inspection blitz on battery electric vehicles and mobile diesel equipment

- We will be getting started at **10:00 am Eastern Time**.
- Use **chat box** for commentary or questions.
- Questions may be answered during the presentation, but most will be addressed at the end of the presentation.
- The webinar is not being recorded. Presentation slides and reference material will be emailed to registrants within one business day of the webinar.

Webinar co-hosts

- **Sam Barbuto** Health and Safety Specialist
Workplace Safety North
sambarbuto@workplacesafetynorth.ca
- **Rick Shulist** Provincial Mining Specialist
Ministry of Labour, Training and Skills
Development
Rick.Shulist@ontario.ca

Agenda

1. Introduction
2. WSN information and resources
3. How to prepare for Ontario health and safety inspection blitz
4. Q & A

Workplace Health and Safety Snapshot for Ontario Mining Sector in 2019



23,455

Full-time employees



Events resulting in lost-time injury or illness

Injury or illness severe enough to require one or more days lost from work



40%

Bodily reaction and exertion
(excessive physical effort, free bodily motion that results in stress or strain on the body, assuming an unnatural position, and repetitive motion)



27%

Contact with objects or equipment
(struck by or against object; caught in, crushed, or compressed by equipment, objects or collapsing materials; and rubbed, abraded, or jarred by friction, pressure, or vibration)



17%

Other
(inhalation in enclosed space; exposure to caustic, noxious, or allergenic substance, electrical energy, hot objects, substances; vehicle, mobile equipment, struck stationary object; non-collision accident; sexual assault)



16%

Falls
(falls to floor walkway or other surface)

Most common lost-time injuries

62 **Bodily reaction and exertion**, includes injuries resulting from repetitive motion, bending, climbing, crawling, reaching, twisting, slipping, tripping; and overexertion in lifting, pulling, pushing, carrying, or turning objects; slip, trip, twist, step on something without a fall; stepping in hole.

42 **Contact with objects and equipment**, includes injuries resulting from being struck by falling, flying, swinging or slipping object; struck by or against object; struck by or slammed in swinging door; stepped on object; caught in or compressed by equipment or object; rubbed or abraded by foreign matter; rubbed, abraded or jarred by vibration; and caught in or crushed in collapsing materials.

24 **Falls**, includes falls to floor, walkway or other surface; falls from ladder, down steps, from non-moving vehicle; jump from structure.

Top 3 Occupational Diseases

Based on approved WSIB claims for healthcare, being off work, loss of wages, or permanent disability

96
Noise-induced hearing loss

34
Hand-arm vibration syndrome

27
Injury and poisoning, includes burns, superficial injuries, heat exhaustion and toxic effects of gases, bee and wasp stings

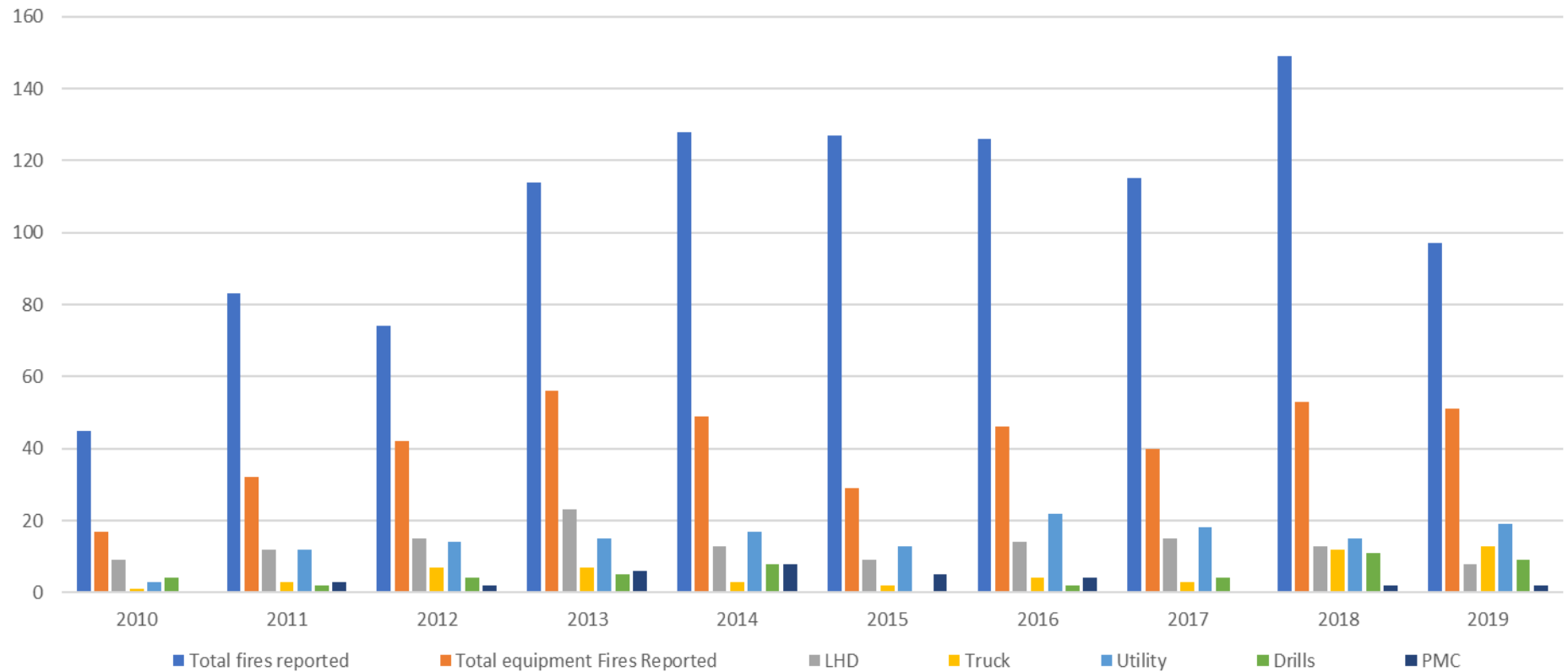
Equipment fires reported to MLTSD

Mine Equipment Fires 2010-2019

Year	Total fires reported	Total equipment Fires Reported	LHD	Truck	Utility	Drills	PMC
2010	45	17	9	1	3	4	0
2011	83	32	12	3	12	2	3
2012	74	42	15	7	14	4	2
2013	114	56	23	7	15	5	6
2014	128	49	13	3	17	8	8
2015	127	29	9	2	13	0	5
2016	126	46	14	4	22	2	4
2017	115	40	15	3	18	4	0
2018	149	53	13	12	15	11	2
2019	97	51	8	13	19	9	2
Totals	1058	415	131	55	148	49	32

Equipment fires reported to MLTSD cont.

Vehicle Fires Reported
2010-2019



Equipment fires reported to MLTSD cont.

Break down of equipment fire cause												
Equipment Class	Cause	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
LHD	Hydraulic	4	8	3	6	7	4	8	12	7	6	
	Electrical	3	2	10	11	4	2	4	3	6	1	
	Fuel	2	2	0	2	0	1	0	0	0	1	
	Mechanical	0	0	2	4	2	2	2	0	0	0	
	Total		9	12	15	23	13	9	14	15	13	8
Truck	Hydraulic	0	1	3	1	3	1	1	2	2	5	
	Electrical	0	1	3	4	0	1	1	1	8	3	
	Fuel	0	0	1	0	0	0	0	0	0	0	
	Mechanical	1	1	0	2	0	0	2	0	2	5	
	Total		1	3	7	7	3	2	4	3	12	13
Utility	Hydraulic	1	2	1	2	6	3	8	9	5	7	
	Electrical	1	5	9	8	6	7	10	5	5	9	
	Fuel	1	2	1	0	0	0	0	0	2	0	
	Mechanical	0	3	3	5	5	3	4	4	3	3	
	Total		3	12	14	15	17	13	22	18	15	19
Drill	Hydraulic	0	0	1	2	5	0	1	4	6	5	
	Electrical	3	2	3	3	3	0	1	0	4	4	
	Fuel	0	0	0	0	0	0	0	0	0	0	
	Mechanical	1	0	0	0	0	0	0	0	1	0	
	Total		4	2	4	5	8	0	2	4	11	9
PMC	Hydraulic	0	1	0	1	1	1	3	0	0	0	
	Electrical	0	2	1	3	6	3	1	0	1	1	
	Fuel	0	0	1	1	0	0	0	0	0	0	
	Mechanical	0	0	0	1	1	1	0	0	1	1	
	Total		0	3	2	6	8	5	4	0	2	2

Virtual Symposium: Battery Electric Vehicle Safety in Mines

January 20, 2021



Virtual Symposium: Battery Electric Vehicle Safety in Mines

Virtual Symposium on Battery Electric Vehicle Safety in Mines

Wednesday, Jan. 20 from 9:30 am to 12:00 pm

Learn about the risks associated with battery-powered equipment and explore ways to manage hazards.

Types of presentations:

- Industry case studies
- Hazard management
- Equipment manufacturing
- Training and risk assessment

To register, please visit workplacesafetynorth.ca/events

Resources

WSN Technical Reports

- [Pedestrian-Mobile Equipment Visibility Guideline](#)
- [Safe Operation of Remote-Controlled Equipment](#)

WSN Mining Equipment Technical Advisory Committee

- [Unusual Occurrence Report for Fires Form](#)

Electric Battery Vehicles and Mobile Diesel Equipment Maintenance in Mines

Focus of this Blitz

There are 3 focus areas for this mining Blitz:

1. increase awareness of some of the unique hazards of battery powered equipment
2. increase awareness of requirements set out for diesel equipment underground
3. increase compliance with the OHSA and the Mining Regulations for Mines and Mining Plants

Compliance Assistance:

WSN Mining webinar December 16, 2020: How to prepare for Ontario inspection blitz on motor vehicle and mobile equipment hazards

Blitz will be active from: December 14, 2020 to March 31, 2020

Focused Inspections: February 3, 2021 to March 31, 2021

Why this topic is important:

- There has been a marked increase of the use of battery-operated mobile equipment in Ontario mines. Applying a strong maintenance program can reduce the risk of hazards that are unique to operating electric battery vehicles or the traditional diesel equipment used in mining.
- The use of battery electric equipment in mines has raised several safety concerns from the batteries, including fire.
- Mining Safety Review ranked mobile equipment in top 10 hazards. Stakeholders, WSN and field staff feedback indicate increasing concerns about electric battery vehicles use in underground mines.

Where Inspectors Will Go:

To Mines and Mining Plants

Mining inspectors will focus on workplaces with battery vehicles. If no electric mobile equipment is in service at the mine, diesel maintenance will be reviewed.



What Inspectors Will Look For:

Battery and Diesel Maintenance

- electric battery vehicles maintenance in mines
- risk assessment for electric vehicle; respecting fires, vehicle movement
- battery charging stations
- fire suppression systems
- LED lights, hazards created due to their high luminescent
- procedures in place and awareness of operators, workers and mine rescue



What Inspectors Will Look For:

Employers must acquaint workers with hazards and provide information, instruction and supervision to a worker to protect the health and safety of the worker.

- procedures for vehicle pre-start checks and reporting deficiencies
- appropriate driver training for the vehicle in operation
- appropriate maintenance personnel training
- scheduled maintenance in accordance with the manufacturer's specifications
- battery charging stations are provided with proper safe guards to protect workers

What Inspectors Will Look For:

For Workers Who Interact With Electric Battery and Diesel Equipment:

- are inspections being carried out on a scheduled program and procedures?
- defects being identified and managed to minimize the hazard
- worker training effective in identifying and managing maintenance issues
- mine rescue provided adequate information and instruction to manage a battery fire event
- unattended vehicles being immobilized and secured against accidental movement

MLTSD Resources

MLTSD resources

- [Risk Assessment and Management for Mines and Mining Plants](#)
- [Mobile Equipment](#) landing page on the MOL website
- [Traffic management programs in mines](#)

Additional Resources

External Resources

- [Recommended Best Practices for Battery Electric Vehicles in Underground Mining – 2nd Edition](#)
- [WSN One-Day Symposium: Battery Electric Vehicle Safety in Mines](#)



Thank you for helping make workplaces safer

Contact Workplace Safety North

1-888-730-7821 (Toll free Ontario)

1-705-474-7233

info@workplacesafetynorth.ca

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