

Runs of Materials in Underground Mines Webinar

July 16, 2026

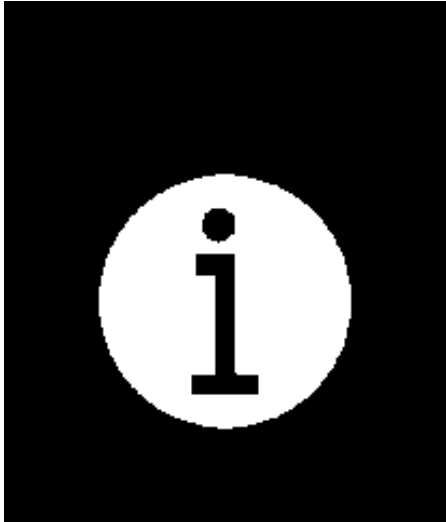


Welcome to the webinar

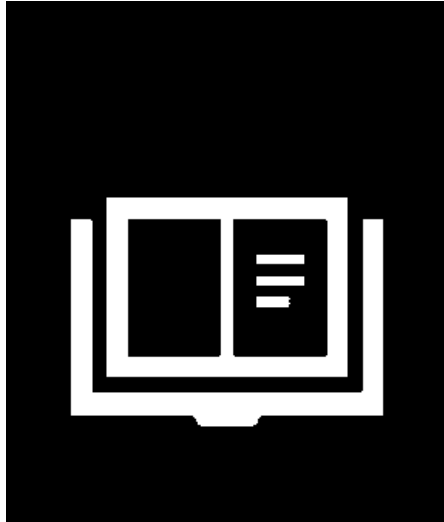
- Thank you for joining us! The webinar starts at **11:00 am ET**
- Please use the **Q&A** at the bottom of your screen for speaker questions and we will answer them at the end of the webinar.
- Please use the **Chat** for commentary or technical questions.
- A link to the webinar recording, a copy of the presentation slides, and reference materials will be emailed to you within a few days.



Health and safety solutions **informed** **by your priorities**



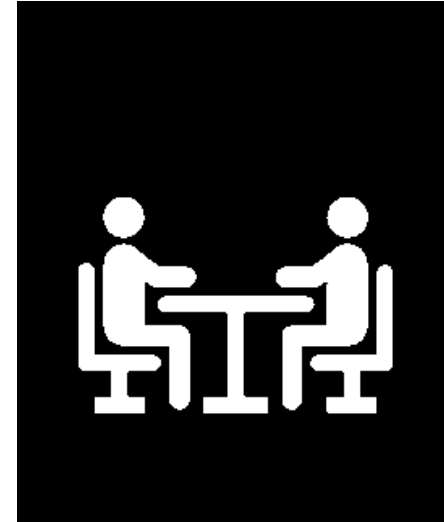
Information



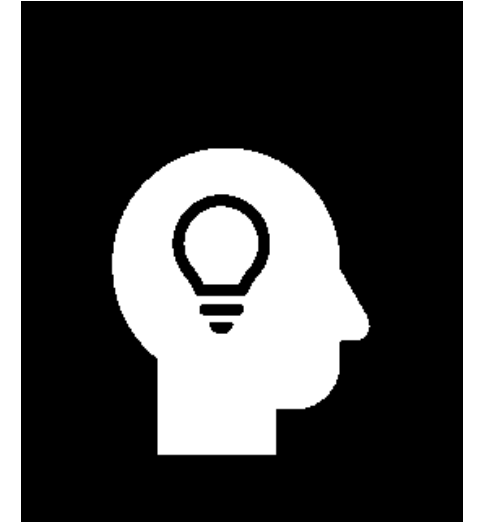
Resources



Training



Consulting



Events



Webinar Overview

- Fatal Traumatic Incident Analysis: Data Range - January 01, 2000, to May 31, 2026
- Reportable Occurrences Analysis: Data Range - January 01, 2012, to May 31, 2026
- What are runs of materials?
- Where can runs of materials happen?
- Where and why can runs of materials happen?
- Summary of 3 runs of materials fatality and inquest
- Run of materials or muck hazard prevention
- Applicable Regulations
- Q and A period





Fatal Traumatic Incident Analysis: Data Range January 1, 2000, to May 31, 2026

Runs of Muck Fatality Events by Cause of Death

Cause of Death	Count of MOL Event ID
Asphyxiation, Drowning or Suffocation	2
Struck by	3
Grand Total	5

Data Source: MLITSD OHS/Fire



Reportable Occurrences Analysis: Data Range January 1, 2012, to May 31, 2026

Runs of Muck Events by Event Type

Event Type Event Sub-Type	Distinct Count of EVENT ID
Occurrence	
Rockburst/Fall of Ground	21
Other	17
(No Sub-Type Specified)	16
Spill	7
Water - Inrush or Flood	7
Equipment Major Failure or Damage	7
Hoisting	3
Underground Vehicle Major Damage	1
Complaint	
Other	2
Internal Responsibility System	1
Injury/Incident	
Non-Critical Injury	1
Fatal Injury	1
Grand Total	84

Data Source: MLITSD OHS/Fire



Reportable Occurrences Analysis: Data Range January 1, 2012, to May 31, 2026 (continued...)

Runs of Muck Events by Event-Sub-Type “Other”

Event Type Event Sub-Type Other Description	Distinct Count of EVENT ID
Occurrence	17
Run of Muck	2
Run of Material	2
unexpected and uncontrolled run of material	1
Mining	1
unexpected and uncontrolled run of material, water or slimes in excess of one cubic metre	1
Equipment	1
Inrush of muck	1
Muck dumped on front end of truck	1
seismic event	1
Possible Water damage	1
unexpected and uncontrolled run of material,	1
Potential defective part	1
Unexpected run of material	1
Potential hazard of water ingress identified	1
Preliminary Seismic Shakedown Report	1
Complaint	2
Undetermined amount of potential run of muck & lack of water management	1
(blank)	1
Grand Total	19

Data Source:
MLITSD OHS/Fire



Reportable Occurrences Analysis: Data Range January 1, 2012, to May 31, 2026 (continued...)

Runs of Muck Events by Workplace Program and MOL

Workplace Program MOL Sector	Distinct Count of EVENT ID
Mining Health & Safety Program	
Underground Mines	67
Mills	8
Surface Plant (Mine Sites)	4
Open Pit Mines	3
Smelters	1
NEC - Mining	1
Grand Total	84

Data Source: MLITSD OHS/Fire



Reportable Occurrences Analysis: Data Range January 1, 2012, to May 31, 2026 (continued...)

Runs of Muck Events by Management Unit

Event Forwarded to Management Unit Reported Employer Constructor	Distinct Count of EVENT ID
Sudbury District Office	36
Timmins District	25
Sault Ste Marie District	14
Thunder Bay District	9
Grand Total	84

Data Source: MLITSD OHS/Fire



Description of Runs of Materials

What is a run of materials?

- A run of materials occurs when ore, waste rock, slimes, tailings, or other bulk material moves unexpectedly and uncontrollably due to gravity.
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- These events are typically sudden, forceful, and often involve water, creating a high-risk situation for workers in the vicinity.
-
- Runs of materials are generally low frequency but high consequence events - often resulting in crushing, burial, or pinning injuries.
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Locations

Where can runs of materials happen?

- Runs of materials can occur in both underground and surface mining operations:

Underground Operations:

- Loading pockets
- Crushing stations
- Ore and waste passes
- Draw points
- Conveyors
- Backfilling operations
- Stopes
- Mucking slimes or saturated material
- Chutes

Surface and Processing Areas:

- Truck dump chutes
- Conveyors
- Bins and hoppers
- Stockpiles



Rationale

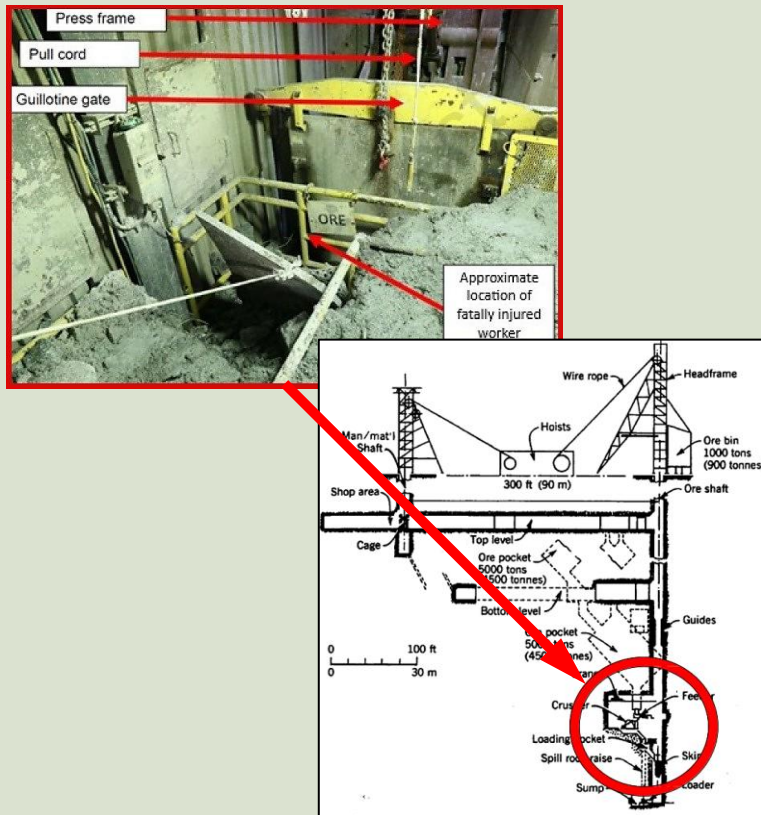
The primary driving force of fragmented material movement – GRAVITY

Factors influencing runs of materials:

- Material properties - size, shape, cohesiveness
- Water content - wet or saturated material
- Temporary or steep slopes - slope angle
- Hung-up or bridged material
- Non-routine work activities



Summary of Fatality and Inquest: Runs of materials into a loading pocket

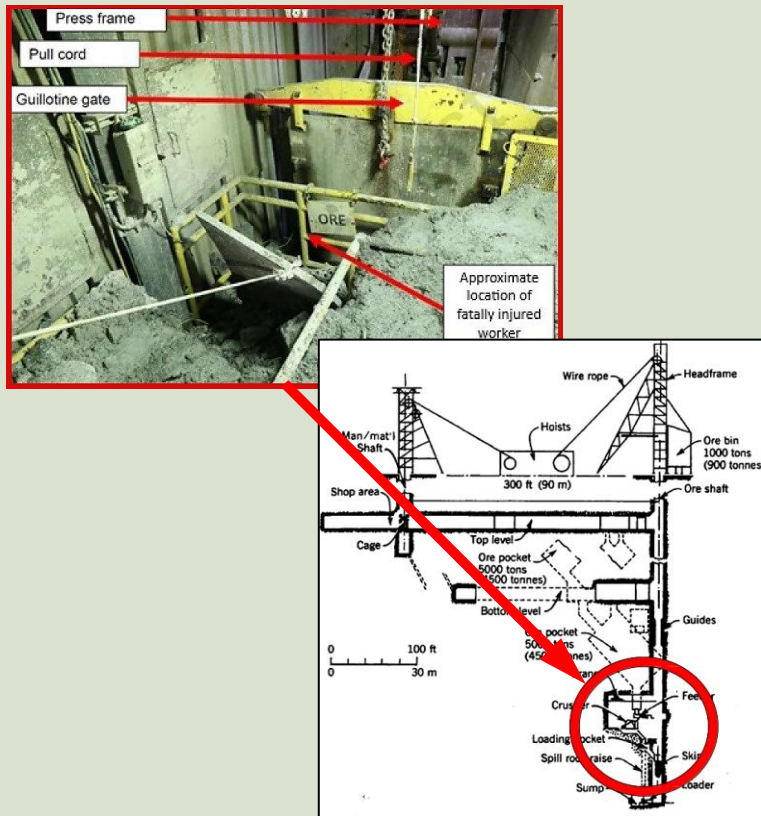


What is a loading pocket and where is it located?

- A component of the shaft hoisting system of an underground mine.
- The ore/waste in an underground mine is directed to the loading pocket through a series of raises and volume is measured (measuring pocket) and then loaded into a skip conveyance and hoisted to surface.
- The attendant/skip operator is responsible for communicating with the hoist operator on surface and the loading of a measured amounts of ore into the skip which is hoisted to surface and dumped into storage bins.



Summary of Fatality and Inquest: Runs of materials into a loading pocket (continued...)

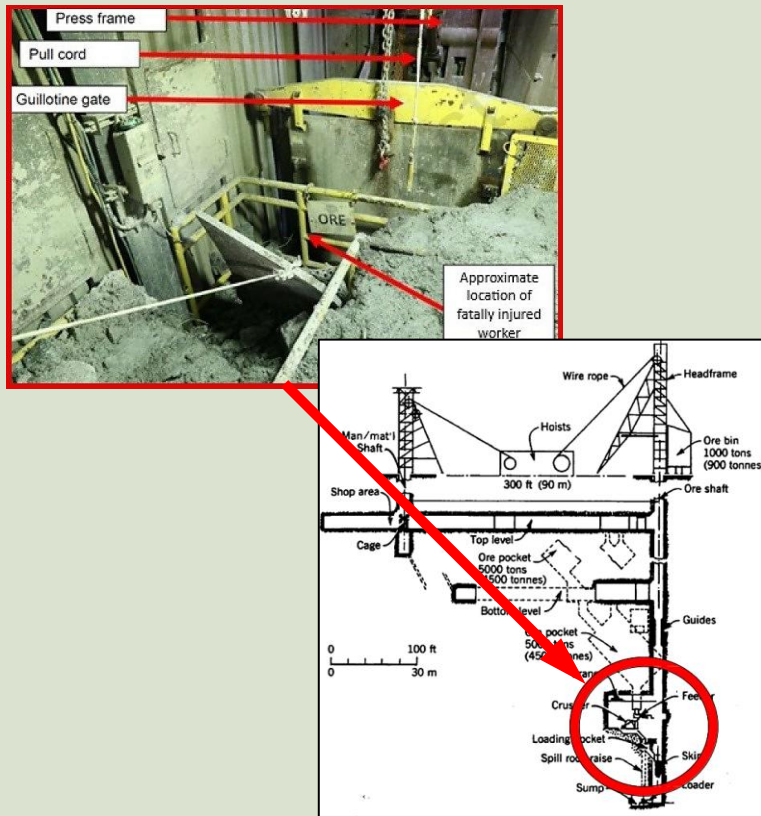


The incident

- A contract worker was working at the loading pocket in an underground mine to check the level of material while the ore pass is being drawn to expose the next section of the wall of the ore pass to be rehabilitated.
- The worker was fatally injured by a run of materials consisting of blasted ore, water and concrete that flowed into the loading pocket where the worker was standing.
- The run of materials partially buried and pinned the worker against the steel railing.



Summary of Fatality and Inquest: Runs of materials into a loading pocket (continued...)



Inquest recommendations

MLITSD

- Conduct a review of the Mining Regulation and develop a plan to clarify and strengthen measures to protect workers from an uncontrolled run of muck or run of material.
- Conduct a review of protocols for sample acquisition in mining investigations to ensure a robust analysis of data is possible.

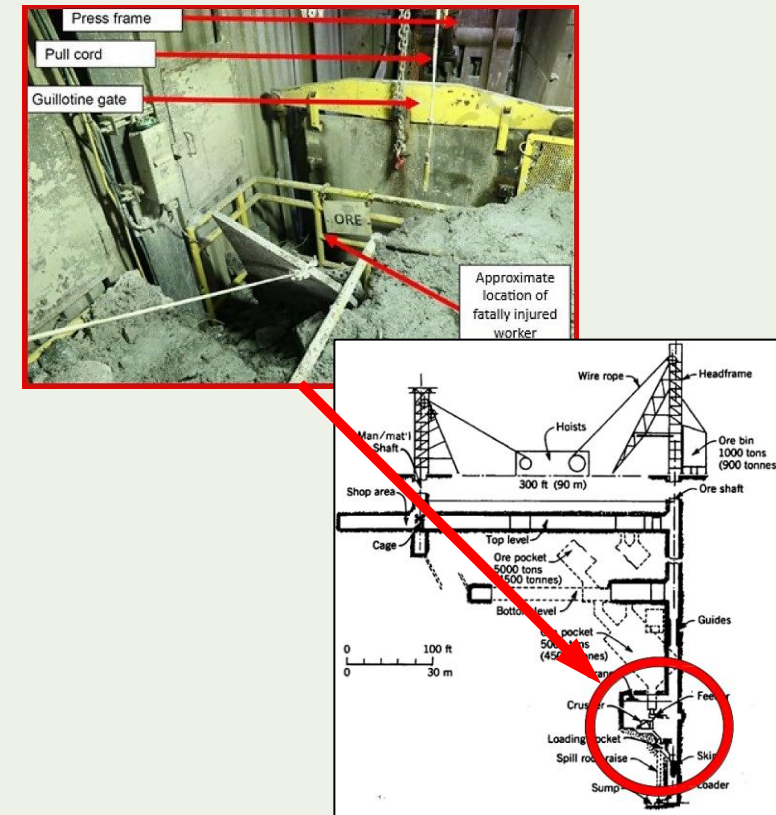


Summary of Fatality and Inquest: Runs of materials into a loading pocket (continued...)

Inquest recommendations (continued...)

MLITSD and WSN

- Consider additional methods of raising awareness in the mining industry about how to recognize the risks of a run of muck or run of material and how to safely respond to that type of event. This could include:
 - Hazard alerts
 - Enforcement campaigns
 - Root cause analyses
 - Training programs including continuing education
 - Updated guidelines on water management





Summary of Fatality and Inquest: Runs of materials into a loading pocket (continued...)

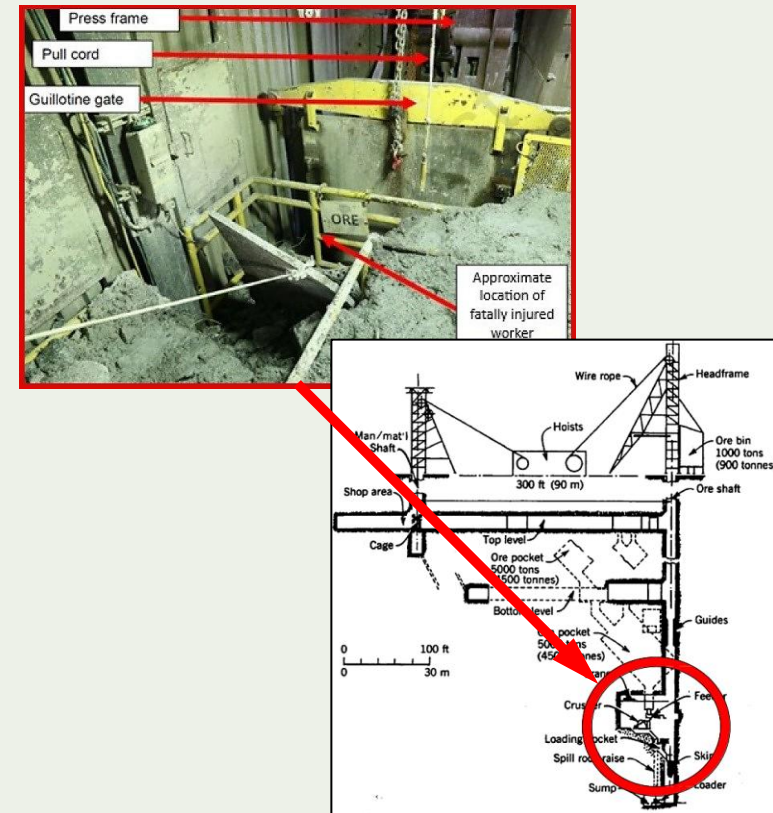
Inquest recommendations (continued...)

MLITSD, WSN, Contactor and Mining Operation

- Share learnings across the mining industry the hazard control steps implemented to address the safety concerns related to the incident.

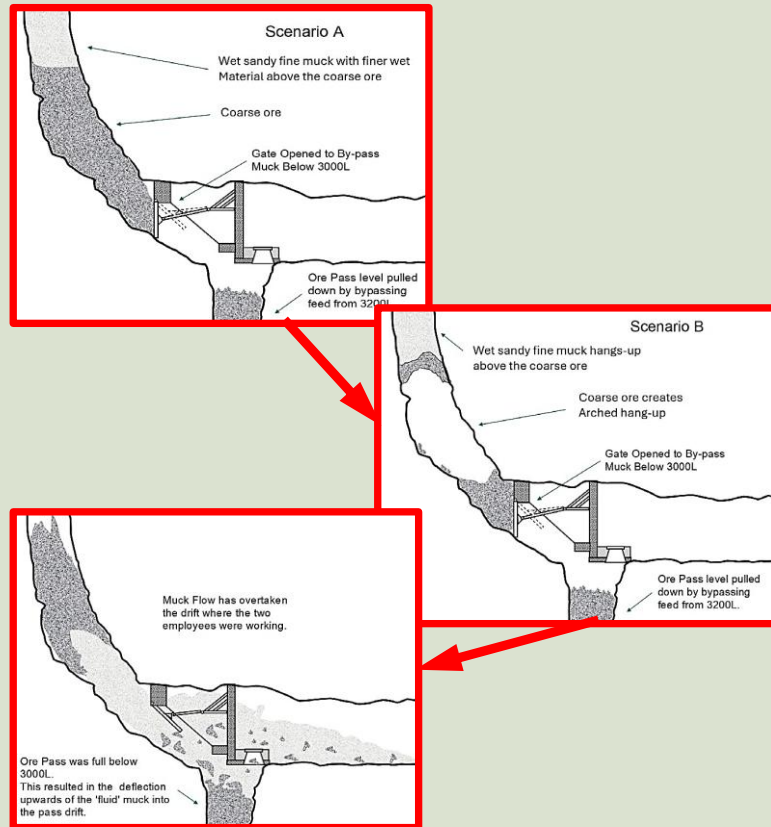
WSN

- Update the mine rescue training materials including the Handbook of Training in Mine Rescue and Recovery Operations to include training on how to safely respond to a run of muck or materials and how to respond to a variety of consistencies of material.





Summary of Fatality and Inquest: Runs of muck in an ore pass

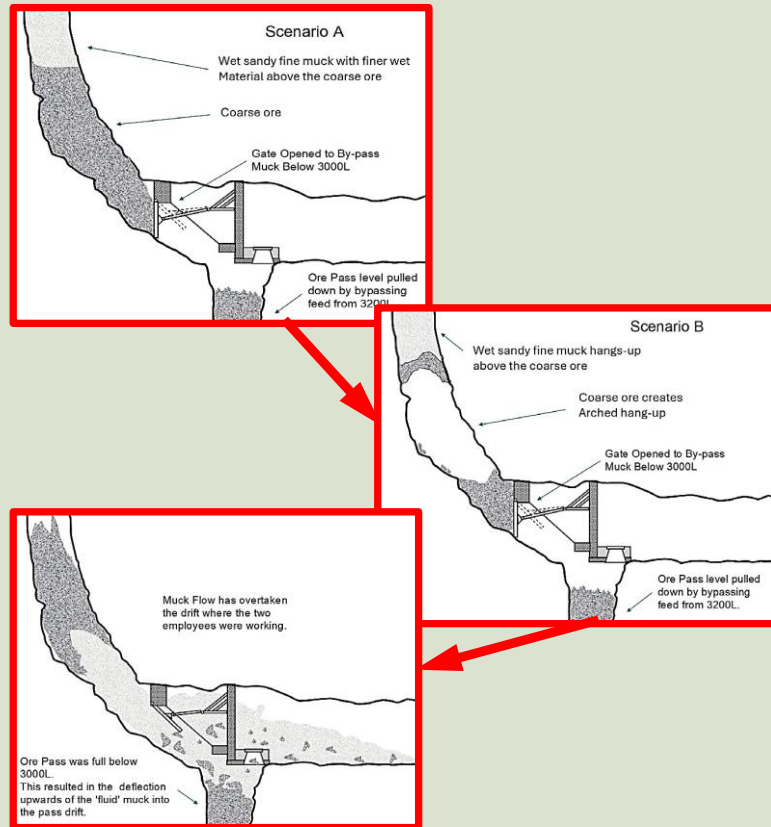


The incident

- Two (2) workers were drawing down the ore pass in an underground mine when the muck inside the pass got hung up and then let go causing a sudden burst of material through the control gate where the workers were located.
- The violent run of muck in the ore pass consisting of broken ore, slimes and water buried the two (2) workers causing the fatal injury.



Summary of Fatality and Inquest: Runs of muck in an ore pass (continued...)



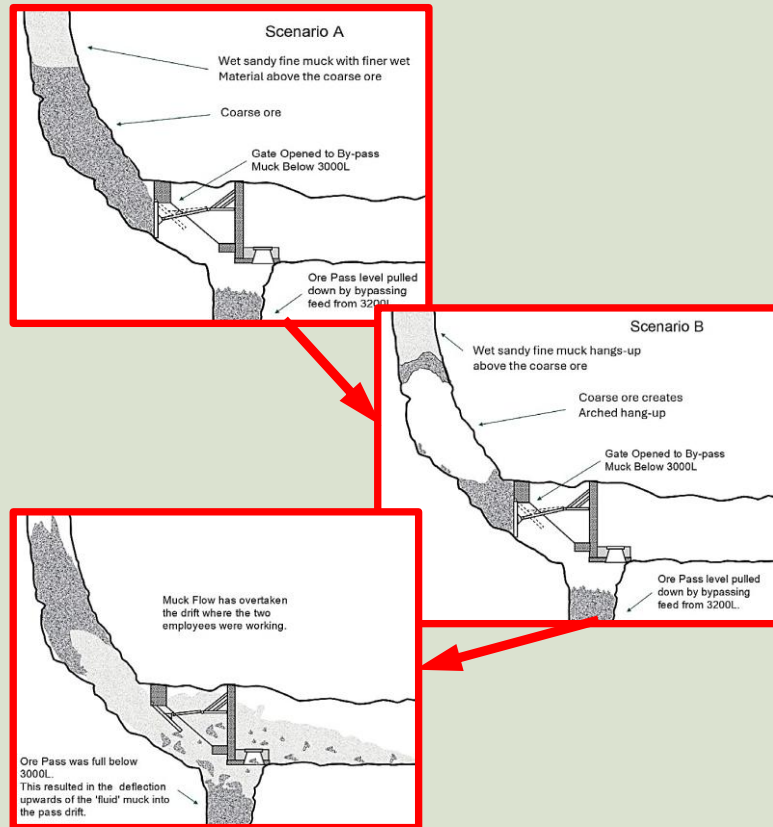
Inquest recommendations

MLITSD (among others)

- Review of the water management in mines and the IRS.
- Supervisor required to attend workplaces every work shift where high risk tasks are being performed such as ore handling and water management.
- If a hazardous condition is recognized and the area is barricaded, no work shall take place except for work authorized by the supervisor for the purpose of correcting the hazardous condition.



Summary of Fatality and Inquest: Runs of muck in an ore pass (continued...)



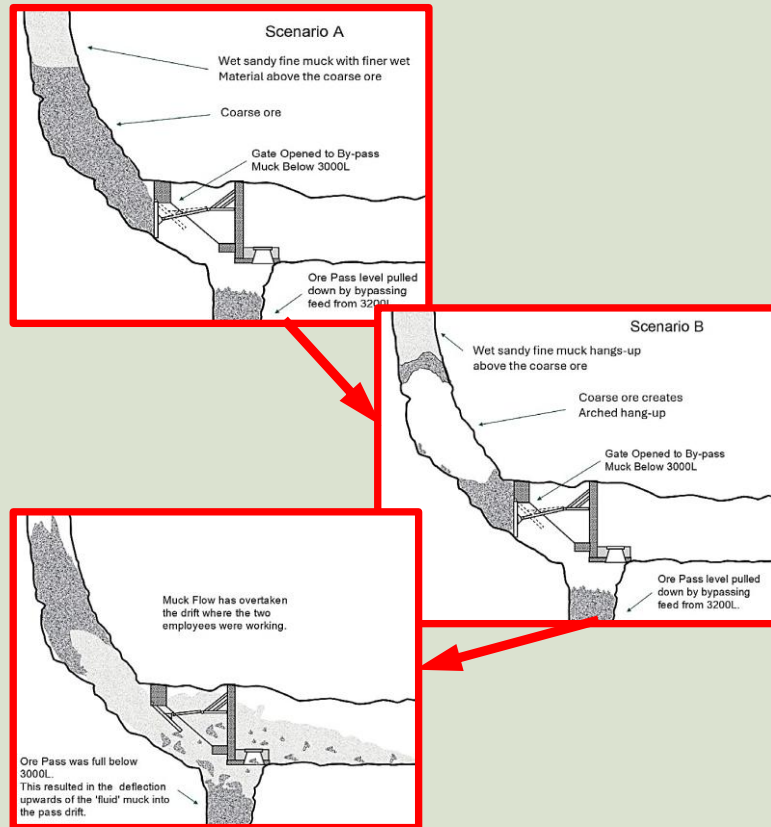
Inquest recommendations (continued...)

MLITSD (continued...)

- No worker shall be positioned so that he/she may be endangered by an uncontrolled run of material, water or slime, while operating controls for moving materials.
- A database be formed and maintained containing all field visits and Coroner's Inquest recommendations in Ontario. The database should be available to MLITSD Inspectors at all times and reviewed during training.



Summary of Fatality and Inquest: Runs of muck in an ore pass (continued...)



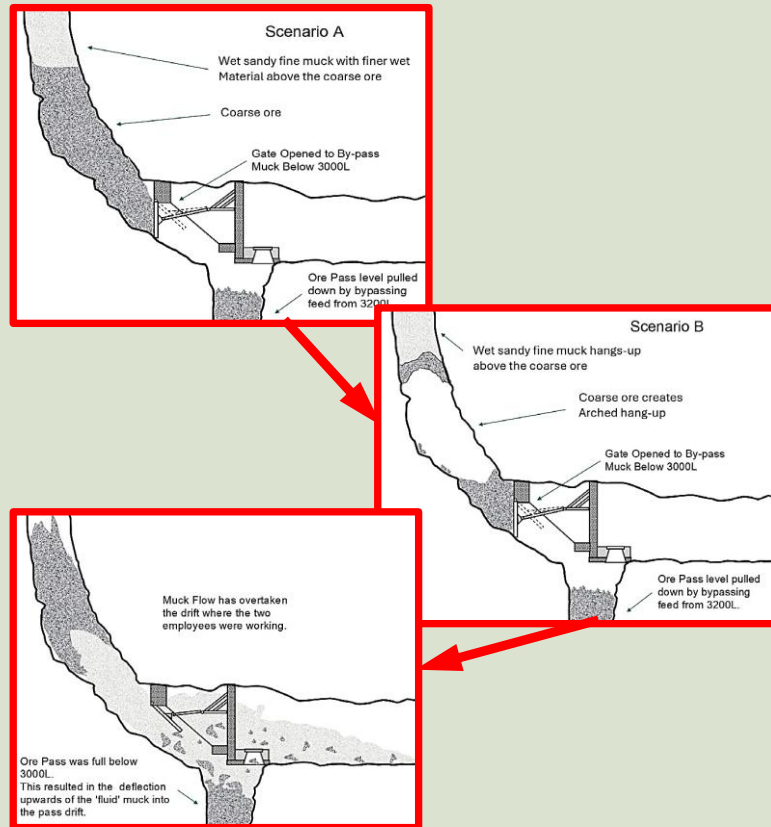
Inquest recommendations (continued...)

MLITSD (continued...)

- Require employers to provide training jointly developed by employer and the JHSC or Worker Representative and presented to relevant employees, on the following:
 - Water management
 - Duties of workplace parties, and
 - Work refusal/training.
- Include regulations for mines to inspect all active ore passes twice a year.



Summary of Fatality and Inquest: Runs of muck in an ore pass (continued...)



Inquest recommendations (continued...)

Operations (among others)

- Review incentives programs to ensure common goal of production and safety, where safety conditions are given equal weight to production in order to foster an environment based on collaboration.
- Implement policy where ore passes be fitted with an appropriate mantle or grizzly.
- Implement policy where the JHSC is notified when double barricade is erected and where significant accumulations of water are occurring.



Summary of Fatality and Inquest: Runs of muck at a stope draw point

The incident

- A scoop tram operator was fatally injured when a run of muck occurred at the draw point of a stope.
- The operator was found buried outside the equipment in a “no-go (or non-entry)” zone for personnel past a safe-limit sign painted on the wall of the draw point.
- The operator could have come off the remote stand and approach the stope brow to fix the water spray as evidence of a broken water spray nozzle was found in the vicinity of the equipment following the incident.



The minimum distance of “no-go” zone safe limit sign (red paint) on the wall from the brow could be 2 or 2.5 times the draw drift height.

The minimum distance of the remote stand from the muck pile toe at the brow = typical drift height + scoop length + clearance *allowance* (e.g., 1 m) from the scoop back bumper while the bucket is at the toe of the muck pile.



Summary of Fatality and Inquest: Runs of muck at a stope draw point (continued...)



Before

After

Inquest recommendations

MLITSD

- Develop guidance materials in order to assist workplace parties to comply with mining regulation 854.
- Define and communicate to the mining industry the term “adequate illumination” with guidance on how best to achieve it.



Summary of Fatality and Inquest: Runs of muck at a stope draw point (continued...)

Inquest recommendations (continued...)

MLRC

- Develop a guideline for mining employers to use in order to determine the safe distance for workers to be located when working in a stope that has an open brow.
- Evaluate the hazards at draw points and to recommend best practices and guidelines for employers and consider regulatory changes.



Before

After



Summary of Fatality and Inquest: Runs of muck at a stope draw point (continued...)

Inquest recommendations (continued...)

MLRC (continued...)

- Create a regulation prescribing that no worker is allowed to go past the safe-limit line on foot without the written permission of the area supervisor, who must inspect the draw point and provide written permission, and that the supervisor must remain in the work area until the completion of the work.
- Create a regulation prescribing the location of sprays in stopes.



Before

After



Summary of Fatality and Inquest: Runs of muck at a stope draw point (continued...)



Before

After

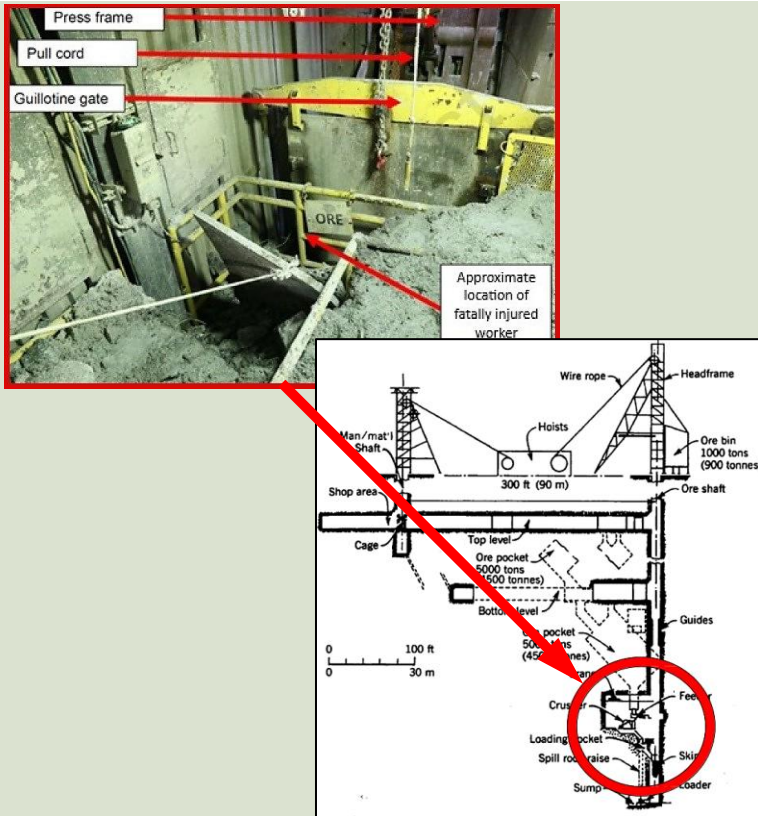
Inquest recommendations (continued...)

Operation

- Ensure that medical staff are trained in critical stress management.
- Increase visibility of the brow with a one-meter-wide visible paint strip across the brow.



Run of materials or muck hazard prevention



How to prevent runs of materials?

- Employers must ensure controls in place are followed including:

Plans and procedures

- Prepare risk-based procedures for non-routine or infrequent tasks.
- Establish written procedures before, during, and after material removal.
- Ensure procedures addressing water inflow, material condition, and potential run-out zones.



Run of materials or muck hazard prevention

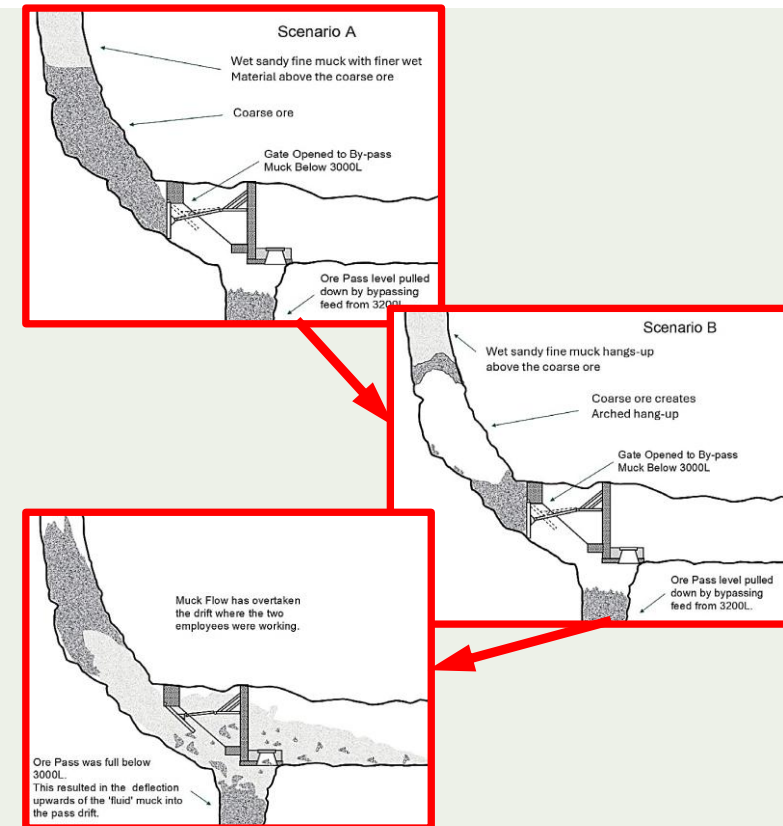
How to prevent runs of materials? (continued...)

Risk assessment

- Conduct field-level risk assessments for each task step.
- Re-assess risks when conditions change (e.g., water presence, material movement).

Water management

- Evaluate and control water inflow into ore passes, stopes, bins, and stockpiles.
- Maintain and follow a written water management program.





Run of materials or muck hazard prevention



Before

After

How to prevent runs of materials? (continued...)

Worker separation and controls

- Install and maintain physical guarding and barriers.
- Clearly define and enforce no-go zones.
- Use remote operation where required.
- Prohibit entry into run-out zones without authorization and controls in place.



Run of materials or muck hazard prevention

How to prevent runs of materials? (continued...)

Communication and training

- Communicate material and water conditions to all affected worker.
- Provide training and awareness on run-of-material hazards and controls.
- Reinforce expectations during pre-task and pre-shift discussion.





Applicable Regulations



Occupational Health and Safety Act, s.25(2)(h): Employers must take every precaution reasonable in the circumstances to protect workers.

Regulation 854 - Mines and Mining Plants

s.5.1–5.3: Risk assessment and hazard management

s.84(1)(2): Written procedures when workers may be endangered by moving bulk material

s.84(3)(4)(5): Practices for designing the site to reduce the risk of run of material

s.87.1(1): Written water management program for underground mines

Regulation 420/21: Employers must notify the Ministry of Labour, Immigration, Training and Skills Development of an unexpected or uncontrolled run of material, water, or slimes exceeding one cubic metre that could endanger a worker.



Thank you for helping to make workplaces safer

For additional information, please contact:

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