

FATALITY: Haul Truck and Pick-up Truck Collision

In November 2018, a pickup truck was travelling on a mine road when it collided with a haul truck crossing at an intersection. The light duty pickup truck operator was pronounced dead at the scene. It was daylight, the weather conditions were fair, and the road in the intersection was well-travelled and clear of snow. Post-accident forensic analysis found there to be no mechanical failings prior to the incident.

Investigation findings

The accident occurred at a multi-lane intersection with limited signage, and right-of-way traffic rules, to manage vehicle interactions. Right-of-way is an administrative control that may not be as effective as engineered controls that eliminate or greatly reduce vehicle interactions. Administrative procedures rely upon operators to continuously anticipate, evaluate and apply rules through the course of equipment operation. Neither operator saw each other until it was too late. There was also evidence to suggest the pick-up truck operator was performing work tasks by way of radio moments before the collision, which demonstrates that there was attention being diverted away from driving.

Control for vehicle interactions

The hazard posed by haul trucks to light vehicles occurs throughout many mine sites and is not unique. This incident highlights the significance of designing traffic plans to control for vehicle interactions, especially in dynamic traffic areas such as intersections, production areas or dumps.

Traffic plans should be designed to eliminate or reduce vehicular interaction through engineered controls where possible and should limit the reliance upon administrative controls to manage vehicle interactions. As the landscape at mines is constantly changing, management with the cooperation of the Occupational Health and Safety Committee must proactively anticipate where traffic control plans must be amended to ensure interactions are controlled before a hazardous environment can develop.



Photo of a pickup truck in a row of haul trucks to illustrate the size difference, unknown location, photo taken by Christopher Halloran/Shutterstock (edited)

Recommended controls:

- **Engineering Controls** – Utilize engineering controls to eliminate or greatly reduce the possibility for heavy and light vehicle interaction such as the implementation of designated or physically separated roadways or controlled roads, parking areas. Consider technology to reduce the interaction of vehicles through collision warning and avoidance systems.
- **Speed Reduction** – Reduce speeds to increase the time available for scanning for other road users, and stopping or altering course.
- **Radio-use Reduction** – Reduce radio usage or in-cab tasks while driving to reduce the attentional demands on the operator. Site specific control measures associated with radio operation procedures to ensure no additional risks created with radio use.
- **Traffic Control Plan** – Review traffic control plans regularly or whenever conditions change.
- **Training** – Ensure related training is up to date regarding all control measures such as, but not limited to, the traffic plan, visibility and blind spot areas of all mobile equipment.
- **Hazardous Conditions** – Should a condition such as a hazardous condition related to the interaction of mine site traffic develop or be identified, the manager must institute control measures to protect persons.

Key Regulatory Reminders

The following *Health, Safety and Reclamation Code for Mines in BC* (Code) requirements are some of the critical regulations that must be implemented regarding traffic planning on mine sites:

- **Health and Safety Program - Code 1.6.9:** The manager shall develop a Mine Health and Safety Program which includes safe working procedures on a departmental basis regarding traffic control. The OHSC shall review for completeness and effectiveness.
- **Training – Code 1.11.1(2):** All employees receive orientation in safe work practices with respect to traffic plans.
- **Traffic Control – Code 6.8.3:** The manager shall prepare traffic control procedures, showing the maximum allowable speeds for the vehicles in use, rules for passing, “stop” and “yield rules,” priority rules for various vehicles, rules for night operation, maximum operating grades, emergency run-off protection, shoulder barriers, and any other information that may be required to ensure the safe operation of all types of vehicles on the mine site.
- **Duty to Keep Plans – Code 6.8.1:** The manager shall keep accurate plans according to good engineering practice showing main roads.
- **Qualified person – Code 6.10.1:** The manager shall require a qualified person to prepare and maintain a plan for dumps, consistent with good engineering practise for roads or ramps including monitoring for safety.

Additional Code sections to consider:

- Workplace Conditions - Code 1.9.1
- Vehicle Requirements – Code 4.9.5
- Haulage Road Width – Code 6.9.1
- Vehicle Runaway Protection – Code 6.9.2
- Restricted Vision – Code 6.19.5
- Disabled Vehicle – Code 6.19.6
- Proposed Coal and Mineral Mines, Major Modifications to Existing Mines & Major Exploration and Development Application Requirements – Code 10.1.3