



CASE STUDY

SAFE & RELIABLE SOLUTION TO ASSIST HAUL TRUCK OPERATORS



“The support, development, installation and training were first class without any problems or delays.”
NSW Mine Project Manager

“It was rewarding to see such a positive response to the Guidance Solution we implemented at the site; a testament to our focus on safety and efficiency.”

Rob Derries,
RCT Custom - Manager

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OVERVIEW

A multinational mining operator in New South Wales (NSW), Australia, required a safe and reliable means to assist their haul truck operators in reversing their trucks down an extended distance of a tunnel created by their Tunnel Boring System (TBS).

The efficient removal of large quantities of rock bored by the highly effective TBS was critical to the success of the operation.

RCT installed their Haul Truck Guidance Solution to allow the operator to reverse the haul truck quickly and safely along the length of the drive without unnecessary stress or machine damage.

Health and safety, together with efficiency, were the key drivers for commissioning RCT, which led to the development of a number of specialised solutions for both underground and surface mining operations.

At the NSW mine site, the haul trucks had to be reversed along the length of a significantly long tunnel to load large quantities of rock waste arising from the rapid boring, and then driven out in a forward direction once loaded.

The issues to be addressed included safe reversing over an extended length of time, together with navigating both in forward and in reverse along the narrower floor width, due to the tunnel shape.

SOLUTION

The semi-autonomous Guidance Solution was engaged by the operator in the haul truck at the entrance to the tunnel, and disabled on leaving the tunnel – reverting to full manual control.

The assistance of laser technology enabled the haul truck to remain on the centre path of the tunnel as it reversed towards the loading point. The operator engaged the truck in reverse direction and only had to provide timely inputs (left/right) at pivotal points.

The system was also designed to detect the correct loading position and safe distance within the tunnel, on every cycle. The on-board laser technology for real time feedback was ideal for this application as no additional infrastructure installation was permitted in the tunnel.

The Guidance technology increased operator effectiveness when maneuvering the haul truck within the tight confines of the tunnel. It reduced the need for machine servicing and machinery damage, significantly increased tramming cycles, and reduced the risk of driver fatigue. Second or higher gears were used as reliance on operator expertise and reaction was reduced.

RCT's Guidance Solution was designed to meet the safety and reliability levels as outlined by the NSW client - and has the capability for future extension to teleremote and full automation. It can be fitted to many makes of articulated haul trucks as required in the future.

RESULT

- Greater productivity
- Reduced operator error and fatigue
- Faster tramming speeds while reversing along the tunnel
- Reduction in machine downtime and machine damage
- Removal of large quantities of rock waste from faster Tunnel Boring Equipment
- Increased operational efficiency and safety

