



Rithmik discovered a fault costing ~\$45,000 in weekly production that no OEM alarm flagged.

At a copper mine, a Hitachi EH3500 haul truck began underperforming its fleet after a routine maintenance event. The OEM onboard systems saw nothing, but the slower truck was dragging cycle times across the entire haul loop. Here's what Rithmik's analytics platform saw, and what the operator did about it.

<p>\$45,000</p> <p>Lost production every week, the fault persists</p>	<p>15% slower</p> <p>Loaded uphill speed, ranking the truck last in the fleet</p>	<p>0 alarms</p> <p>Triggered by the OEM onboard monitoring system</p>
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Rithmik is a prescriptive analytics platform for surface mining operations.

Diagnosis, not just detection. Rithmik is your prescriptive analytics platform for mobile mining equipment, bridging the gap between operations and maintenance. Using data you're already collecting, the platform diagnoses root causes before failures happen: reducing maintenance costs, improving availability, cutting unplanned downtime, and optimizing fuel efficiency.

01 – Context / Problem

A Hitachi EH3500 haul truck at a copper mine has been underperforming its fleet since a routine preventive maintenance event on December 4.

The truck is still hauling, but it is dragging cycle times across the haul loop, and the OEM onboard monitoring systems have triggered no alarms.

The question: what changed on December 4, and what is it costing the operation?

02 – Anomaly Detected

Given the truck's sensor history and the performance of its fleet peers, Rithmik's analytics platform flagged a degradation pattern: low effective haul speed, low engine power, and reduced productivity across measured haul cycles.

Average loaded uphill speed had dropped from 13 to 11 km/h, a 15% reduction, ranking the truck last in the fleet on effective resistance and engine power.

No OEM alarms fired at any point. The anomaly surfaced exclusively through Rithmik's relative fleet ranking and signal deviation models, which compare each truck against its peers across the same haul loop.

03 – Signal Analysis

Rithmik Proprietary Analytics Model, Engine Performance Signals



04 – Failure Mode Diagnosis

A Maintenance-Induced Fault, With 88% Confidence

<p>Failure Mode</p> <p>Engine low power following PM event causing cooling and combustion system degradation.</p>	<p>88% Confidence</p>
<p>Evidence</p> <p>Intake manifold temperature deviation and sub-normal coolant and boost pressure suggest an aftercooler or cooling regulator issue introduced during PM. Fluctuating coolant temperature and boost pressure at full throttle indicate compromised combustion efficiency. Underperforming cylinders suspected.</p>	
<p>Category</p> <p>Maintenance</p>	<p>Component</p> <p>Engine - Cooling & Combustion System</p>

05 – Outcome

\$45,000 a Week of Production Protected

Every week, the fault went undiagnosed, the operation was losing roughly \$45,000 in production. A single slow truck does not operate in isolation; it backs up the loader, queues every truck behind it on the dump cycle, and drags effective cycle times across every unit on the same haul loop. Rithmik flagged the fault, traced it back to the December 4 PM event, and delivered the diagnosis with recommended corrective action.

Equipped with the diagnosis and the underlying signal evidence, the operator was able to take targeted corrective action and restore the truck to fleet performance. The weekly bleed of production stopped.

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Rithmik showed their AI solution could reveal early indicators of genuine equipment issues beyond what was available from the manufacturer's alarms.

– Superintendent of Reliability
Canadian Mining Operation

Book a 20-minute walkthrough at info@rithmik.com and see what Rithmik would surface on your fleet.