



INDUSTRY

SAFETY ALERT

Blocked fuel tank ventilation system led to explosion, injuring worker

Date of incident: August 2015 (Source: WorkSafeBC)

Incident summary: A worker was operating a fully loaded logging truck when the truck's engine stalled. The worker opened the right-side fuel tank to see if there was fuel in the tank. As he did so, the tank erupted in flame. The worker sustained serious burn injuries and was treated in hospital.

Investigation conclusions

Cause:

Blocked fuel tank vent tubes led to buildup of vapours from hot, recirculated fuel. The fire was caused by a stoichiometric fuel-to-air mixture (chemically correct for combustion to occur) ignited by an unknown source.

This condition developed because fuel tank vent tubes were blocked with mud, preventing gaseous fuel from being released and allowing it to build up in the tank. While the truck laboured up a steep grade, hot fuel was recirculated back into the tank. The truck's fuel pump could not overcome the vacuum created by the mud-blocked tank vent tubes and the truck engine starved for fuel, causing it to stall.

The recirculation of hot fuel also caused fuel vapours in the tank to heat up above the flashpoint of diesel fuel.

When the worker removed the tank cap, a fireball erupted, causing serious burn injuries to his face and neck.

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