TRANSPORT – Fatal 2 - Tipper lorry roll over during the unloading of a bulk fuel material

WHAT HAPPENED

The lorry overturned during the start of its off-loading procedure. The incident was captured on video. Fortunately, nobody was injured in this high potential incident.

Please view the short video of the incident captured by the on-site camera

Damage was sustained to the trailer unit, plus some spillage of the load – the area was cleaned and returned to site standards.

Main Root Causes

- Failure of tipping valve lever to return to the neutral position after operation.
- The lever was found to be defective ('wobbly') and the rubber boot around the lever handle had split allowing dirt to enter the mechanism.

Please see below an image of the faulty lever mechanism

LEARNING POINTS / ACTIONS TAKEN

Recommended Actions / Learning Points

- An exclusion zone to be established around the designated tipping location to prevent personnel and vehicle access within the ‘danger area’.
- Ground at designated tipping area checked (confirmed) to ensure level and solid.
- Inspect tipping valves on all hauliers’ trailers with similar mechanism.
- Communicate this incident to all tipping vehicle delivery drivers and site personnel to ensure they understand the root cause and are extra vigilant (Haulier)
- In the short term, a company representative to assist the tipping of all fuel tipping trailers.
- All other tipping activities reviewed.
- Ensure check of tipping valve operation is included in driver daily checks from now on and add a more thorough check by a mechanic to trailer annual maintenance check or similar (Haulier)
- Modern controls only operate when the lever is pushed to raise or lower and should return to neutral automatically as soon as hand is taken off the control.
- Checks should also include the safe and effective operation of the tailgate mechanism.

Additional considerations beyond the scope of this specific incident but reflecting engineering solutions that can mitigate risks whilst tipping.

1.Use of vehicles with the tipping gear control in the cab.

The driver can remain located in the cab with a seat belt on and the cab door closed. The driver can observe the discharge via mirrors or cameras. One advantage of the rear camera on tippers – it that if configured correctly you can observe the discharge. Some companies specify the tipping gear controls to be fitted on the left side of the driver’s seat – so the driver must be physically in the driver seat to operate.

In many vehicles the control leaver is located on the left side of the driver’s seat, but the driver is still able to operate from ground with driver stood outside with the door open.

Situations where a driver is able to operate the tipping gear controls whilst outside the vehicle means that he is located within the exclusion zone and cannot observe as much as when located in the cab, increasing the risk for the driver and others.

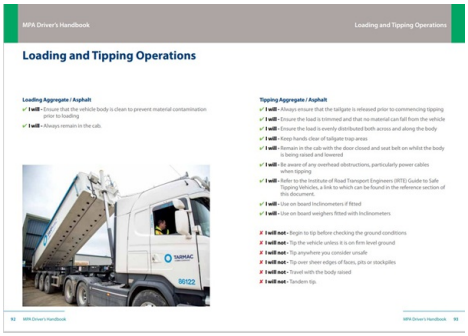
2. Use of inclinometers

Many vehicles are now fitted with inclinometers that provide warnings and/or automatically stop or prevent the tipping process if outside safe parameters.

3. Use of structures that prevent overturns see image below typical structure

Additional resources support training and reinforcement of good practice

- CEMEX Toolbox Talk on the use of inclinometers – available via Safequarry.
- MPA’s Drivers Guide section on Tipping page 110 – see image below. Available via Safequarry



MPA Driver's Handbook Loading and Tipping Operations

Loading and Tipping Operations

Loading Aggregate / Asphalt

- ✔ **I will –** Ensure that the vehicle body is clean to prevent material contamination prior to loading
- ✔ **I will –** Always remain in the cab.

Tipping Aggregate / Asphalt

- ✔ **I will –** Always ensure that the tailgate is released prior to commencing tipping
- ✔ **I will –** Ensure the load is trimmed and that no material can fall from the vehicle
- ✔ **I will –** Ensure the load is evenly distributed both across and along the body
- ✔ **I will –** Keep hands clear of tailgate trap areas
- ✔ **I will –** Remain in the cab with the door closed and seat belt on whilst the body is being raised and lowered
- ✔ **I will –** Be aware of any overhead obstructions, particularly power cables when tipping
- ✔ **I will –** Refer to the Institute of Road Transport Engineers (IRTE) Guide to Safe Tipping Vehicles, a link to which can be found in the reference section of this document.
- ✔ **I will –** Use on board Inclinometers if fitted
- ✔ **I will –** Use on board weighers fitted with Inclinometers

- ✘ **I will not –** Begin to tip before checking the ground conditions
- ✘ **I will not –** Tip the vehicle unless it is on firm level ground
- ✘ **I will not –** Tip anywhere you consider unsafe
- ✘ **I will not –** Tip over sheer edges of faces, pits or stockpiles
- ✘ **I will not –** Travel with the body raised
- ✘ **I will not –** Tandem tip.

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LOCATION:	**LIME & SLAG PLANTS**	**ALERT STATUS:**	**Normal**
ACTIVITY:	**TRANSPORT & LOGISTICS / DELIVERY**	**DATE ISSUED:**	**30/11/2023 18:32:31**
SUB ACTIVITY:	**DELIVERING FUELS & LUBRICANTS**	**INCIDENT No:**	**03681**