



Forward Tipping Dumper Safety

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Forward Tipping Dumpers

- High number injuries and fatalities have occurred with FTDs
- Between June to December 2016....
 - 6 deaths within 6 months, or 4 deaths in 1 month or 2 deaths in one day...
 - 31/5/16 – Cirencester - dumper overturned - deceased jumped from machine (*Tuesday*)
 - 3/10/16 – Manningtree, Essex – dumper overturned - deceased not wearing seat restraint (*Monday*)
 - 3/10/16 – St Athan, Vale of Glamorgan – deceased found next to overturned dumper (*Monday*)
 - 10/10/16 – M1 near Daventry – struck by dumper (*Monday*)
 - 28/10/16 – Keith, near Aberdeen – struck by dumper (*Friday*)
 - 5/12/16 – Edinburgh – struck by dumper (*Monday*)

Forward Tipping Dumpers

- HSE commissioned research report (RR1066) – Use and non-use of seatbelts in FTDs - published 2015
- Report identified reluctance of operators to wear seatbelt due to:
 - *Low levels of trust in the ROPS*
 - *Inconvenient and uncomfortable*
 - *Seat belts become dirty and damaged*
 - *Perception they were better off jumping clear*
- Report suggested manufacturers should consider
 - *Fitting integral cabs*
 - *Improving seat belt/seat design for better restraint*
 - *Fitting retractable seat belts with better interlock mechanisms*

Forward Tipping Dumpers

- *Industry should consider encouraging higher specification machines (all weather operations)*
- *Enforcement of seat-belt wearing*
- Industry Forum meeting held October 2016, chaired by HSE
- Main discussion items included:
 - *site discipline*
 - *cabs*
 - *machine selection*
 - *operator positioning when off the machine*
- One contractor trialling cabbed dumpers reported increased efficiency and safety when operators stayed with machine

Forward Tipping Dumpers

- Agreed to address user issue first followed by design solutions
- Second Forum meeting held February 2017
- Delegates made commitment to reducing incidents
- Main discussion items and proposals included:
 - *banning dumpers on stockpiles*
 - *designing a minimum dumper specification*
 - *grading of machine selection into bronze, silver and gold standards*
 - *education – (CPA to devise safe-use document)*
- Specification group to be formed - chaired by CECA

Forward Tipping Dumpers

Industry initiatives



*Potential 'Gold'
specification
dumper*

Forward Tipping Dumpers

- CECA specification group proposals include:
 - *Designing out risks/good housekeeping*
 - *Ban/strongly control dumpers on spoil heaps and next to trenches/gullies etc.*
 - *Correct selection of plant*
 - *Industry standard for exclusion zones*
 - *Use of TPIs, inclinometers, 360° camera, CAS etc.*
 - *Full cab (as per EN474 for non-compact dumpers)*
 - *Hi-viz seatbelts and audible warnings etc.*
 - *Weighloaders*
 - *Audible alarms for raised skips*

- 3rd Industry Forum held 28th Sept 2017 by CECA and CPA
- 80 delegates from Clients, Tier 1s, owners, manufacturers, trainers etc.
- CPA Survey to its members (18) inc:
 - *Fleet sizes - some with over 150 units*
 - *None had inclinometers, a few had cameras/CAS (but would retrofit)*
 - *Some actively fitting/supplying cabs, CAS (although OEM only as expensive retrofitting)*
 - *Remainder will fit on request – providing customer's pay more*
 - *Suggested better enforcement for rule transgressions*
- CECA survey....

- Other discussion items included:
 - *Machine and operator selection*
 - *Removing dumpers as a 'free-for-all' machine*
 - *CDM principles – designing out risk at planning stage*
 - *Cab specifications and operator staying seated during loading*
 - *Coloured seat belts*
 - *Spoil heap design*
 - *Operator involvement*
 - *Training of CDM designers*
 - *Sharing of information – accident causation*
 - *Industry safety campaigns*

- Joint actions:
 - *CECA 7 principles to be a focus of a campaign 2018*
 - *CPA Plant Safety Group Good Practice Guide (GPG) specific to FTDs*
 - *CPA GPG guide on Ground Conditions to be updated for spoil heap design incorporation*
 - *CPCS Update to FTD training and refresher programmes*
 - *CPA Safe-use Guidance for Operators*
- *BSI prEN474 part 6 update - revisions inc.*
- *Dumper definition*
- *Access issues (frequency of access)*
- *Visibility and skip loading level specification*
- *Cab impact protection strength*

CPA Safe Use Guidance

- Devised in response to first industry meeting
- Written as a learning tool to support refresher training, toolbox talks etc.
- Used to support and compliment other publications such as HSE's CIS 32 and HSG 144
- Format of positive messages in a 'stay safe by'...message
- Aimed at operators, supervisors and managers of dumper-based operations
- To be available as a free download



CPA Safe Use Guidance

- Divided into 3 parts
- Part 1 for operators
- Topics include:
 - *pre-work knowledge*
 - *preparation]*
 - *Travelling and manoeuvring*
 - *being loaded*
 - *Transporting a load*
 - *Discharging a load*
 - *Completing work*



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Part 1 – For operators, how to stay safe

Pre-work knowledge

Stay safe by knowing...

- How to stop the engine before starting it.
- How the safety aids fitted on the dumper work, such as cameras, reversing and collision warning systems etc.
- Which are the correct and authorised routes between the parking, loading and tipping areas.
- How the machine is to be loaded and with what materials.
- The maximum gradients or slopes that the machine can travel on, both up, down and across.
- That machines with a full or overloaded skip are prone to overturning on uneven or soft ground.
- That travelling on a stockpile can cause the dumper to become very unstable and prone to overturning.
- That the travel route to the tipping area will bear the weight of the loaded dumper.
- That travelling on wet surfaces can increase the stopping distance or cause skidding.
- The conditions for setting up the dumper if towing a trailer.
- Where the exclusion zones are for the site.

CPA Safe Use Guidance

- Part 2 – supporting information
- Underpinning knowledge of the what, when, how's and why's
- 5 topics that deal with:
 - *preparation and principles*
 - *working safely and with others*
 - *specific operating issues*
 - *stability and overturning*



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Part 2 – Supporting Information

Preparing to and completing work

- Forward tipping dumpers are commonly used on many construction and related sites and are responsible for transporting materials safely and efficiently. The large number of forward tipping dumpers in use means that incorrect operation often occurs and is responsible for many accidents and incidents, which cause serious fatalities and deaths. Operating a fully loaded dumper can be hazardous without proper training or planning, and without taking proper care and paying attention.
- Correct and thorough preparation is essential to all plant, including forward tipping dumpers, to ensure that the dumper is able to work safely and efficiently. Failure to properly check the dumper before work could result in injuries because faults can affect both the performance and safety of the dumper.
- Defects noted by the operator, even if they consider them to be insignificant, must be reported, otherwise the fault could get rapidly worse during the working day. For example, if the operator notices an oil leak from underneath the dumper, they must report it immediately as they may not be sufficiently qualified or experienced to decide whether it is safe to use.
- Seatbelts are fitted to dumpers to restrain the operator in the seat. The seatbelt must be clean and undamaged, the securing bolts secure and the securing mechanism must not be disconnected unintentionally. If an inertia retractable type is fitted, it needs to provide some pretension to the body when worn. An inertia locking mechanism is fitted to prevent loosening of the belt when a large movement is detected, and this can be checked by pulling the belt sharply which should lock the belt. If the seatbelt is the non-retractable type, it must be adjusted so it minimises body movement when worn.
- On many dumpers, access to the engine compartment is gained by opening the top canopy on which the seat is situated. On completing the checks, the operator must ensure the canopy is properly closed and locked; otherwise the seating position is insecure and can move when the dumper is being operated.

Working safely and with others

CPA Safe Use Guidance

- Part 3 – Planning and supervision
- Factors that should be taken into account for:
 - *machine selection*
 - *equipment specification for the task*
 - *before work begins*
 - *during operations*
 - *completion of work*



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Part 3 – Planning and supervision

Introduction

Correct and effective selection, planning and supervision is essential for the safe use of forward tipping dumpers but the large number in use means that incorrect operation often occurs and is responsible for many accidents and incidents, causing serious injuries and death.

Dumpers should not be specified where more effective or safer equipment or methods can be used. (ref **PUWER regs**) Forward tipping dumpers are designed to principally carry loads that are contained within the machine's skip. Other types of use, or where loads exceed the confines of the skip, should be checked with the manufacturer.

Dumper operations can be hazardous without proper planning, and managers and supervisors need to understand safe operating aspects and the potential issues that can exist. Managers and supervisors have personal and legal responsibility to ensure that all forward tipping dumpers are used safely. Serious misuse of forward tipping dumpers should be treated as potential gross misconduct which could well lead to dismissal or individual prosecution.

Before work, managers and supervisors should ensure that the operator:

- knows that if it is not safe to start work - They must inform you
- knows that if it is not safe to carry on working - They must stop and inform you
- wears the seat belt which reduces the risk of injury should the forward tipping dumper overturn. It could save their life
- operates in accordance with the manufacturer's instructions.

Managers and supervisors need to understand that dumpers, particularly when loaded, have a high centre of gravity and can be prone to overturning on steep inclines or very uneven ground, and that a fully loaded dumper causes a lack of forward visibility meaning that nearby pedestrians are at risk of being struck. Furthermore, the lack of visibility can cause the dumper to strike objects, structures or other plant.

CPA Safe Use Guidance

- Case study Annex
- Based on an observed incident
- Narrative on:
 - *the sequence of events*
 - *why it was not good practice*
 - *how it could have been prevented*



Questions