



Hung Loads are a “wicked problem”

The Problem

Hung or Stuck loads happen when the waste is not able to eject cleanly from the vehicle, bin or trailer.



You only find out if the load is “risky” when the doors are opened or the ejection operation commences.

The Risks

The risks during this operation are to people, property and plant.

People risks include:

- Being struck or crushed by the unstable waste vehicle falling over, struck by a projectile.
- Being crushed or engulfed by the ejecting waste, or being pushed/falling into the waste chute, and being struck or crushed by other moving machinery.

Property and plant risks include:

- Damage to truck and trailer units.
- Damage to tipping pad and wall.

These risks are called a “**STKY**” (Stuff That Kills You).



And the risk of the STKY is dynamic, meaning, that the presence of the risk in the work as done (**WAD**) can vary throughout the day.

And if a worker is exposed to that dynamic risk, it can cause a life-changing or life-altering event.

A Wicked Problem

Dynamic risks are not only a wicked problem to solve, they are just as hard to understand and control. The EU sought to try a “different way” for PCBUs to better understand these risks.

Enforceable Undertaking

This case study on dynamic risk is part of an enforceable undertaking (**EU**) between EnviroNZ and WorkSafe NZ initiated in November 2022 as the result of a fatal accident in March 2020.

The full report and resources can be read here:
<https://hoptool.com/environzeutools>

Context of Dynamic Risk

Dynamic risks are not always the same every time workers do a job. They become present when:

- Something is different from usual (new worker, different weather, or a busy day).
- Work needs to be done quickly or under pressure.
- Unexpected events e.g. equipment failure, hung loads, unsafe acts of public, commercial operators.

Dynamic risks show up during normal work. Workers are often the first to spot them, and talking about them together helps everyone stay safer.

EU CASE STUDY - MAPPING DYNAMIC RISK

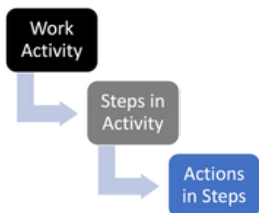
How they look on paper and how the risks are controlled may look very different in WAD.

Map Dynamic Risk

A tool was developed to help the PCBU understand how work actually happens (not just how it's imagined (**WAI**) and where dynamic risks might emerge as conditions change.

The tool maps:

- What tasks are being done (broken down by work activity, steps in the activity, and actions in the step) in the actual work



- What hazards or energy are present in the work tasks.



- What controls manage the hazard and energy, called **Hard Controls**.
- What controls rely on human judgment to work, called **Soft Controls**.
- Where workers are required to problem-solve in real time, called **Field based decision making**.

What Did We Find

We mapped the risk of hung loads with a PCBU against their current view and engaged with workers to understand WAD.

We used tools like the **4Ds** [Dumb, Dangerous, Difficult and Different] and STKY (see the resources about the tools). From the PCBU we found:

- Zero hard controls for the five energy-based hazards.
- 90% of the controls were reliant on workers doing the right thing every time.
- 40% of the controls required field-based decision making by the workers during work.
- Exclusion zone rules or escalation to management were the only formal tools.

From the workers we found:

- Frequency of hung loads was higher than reported.
- Workers had developed informal tools to problem solve situations.
- Frustration and aggression from drivers was common when hung loads stopped/delay operations.

What Did The PCBU Do

- Identified event patterns, engaged waste operators on loading & truck/trailer design to reduce events.
- Created awareness with commercial drivers on hung loads and aggression.
- Empowered pointsperson to turn away hung loads or make the load safe first.
- Another point person to manage truck queues and de-escalate driver frustration.
- Made event reporting easy and convenient for the pointsperson.
- Health & Safety Reps doing 4D/STKY talks with workers.

KEY LEARNINGS

Most risk controls depend on workers: Making the right call at the right time. Safety often relies on tacit knowledge, good judgment, not just rules.

Dynamic Risk is different: Leaders assume rules or plans alone can control risk, but work situations are more complex.

Workers adapt all the time: Workers solve problems in real time. Adaptations are often invisible until it goes wrong.

Rules don't always work well in dynamic situations: Workers make decisions outside of the rules to get the job done safely, especially when unexpected situations happen.

Mapping the gap between WAI and WAD: Shows where workers make decisions, where controls are missing or weak, and where rules don't work.

Psychosocial risk is hidden in plain sight: Understanding WAD will show issues like aggression, fatigue, pressure, frustration, and confusion as part of daily work.

Leadership must be curious, not just compliant: Be curious about why workers adapt in everyday work. Encourage safety conversations that focus on "*what's changing today*" and "*what's different*" to build stronger systems and controls.

Small change matters because the risk is always changing and workers have the best knowledge and insights on Work As Done.