Safe transport in waste management and recycling facilities

Introduction

1 This 'best practice' was written in consultation and with the support of the Waste Industry Safety and Health (WISH) forum.

2 This guidance is aimed at waste management facility managers, their supervisory staff, and safety professionals within waste management companies. It can also be used as the basis for training operatives and the development or improvement of workplace transport systems.

3 Waste managers should use this guidance in conjunction with the Health and Safety Executive's (HSE's) *Workplace transport safety* (HSG136 - priced publication) and *Managing vehicle safety at the workplace* (INDG199 - free leaflet). A list of further helpful publications can be found on the HSE website at: www.hse.gov.uk/workplacetransport/index.htm.

4 Workplace transport accidents are one of the most common causes of fatalities in the waste management industry. Being struck by moving vehicles in the waste management industry accounts for around 140 reportable accidents to HSE every year. What makes transport accidents an important area for action is that although the **numbers** of incidents are comparatively small, the **consequences** are frequently severe.

5 This best practice document covers most types of waste management facility, such as landfill sites, recycling plants and transfer stations. Although it can be used as a basis for advice about transport risks and solutions at other types of undertaking (eg civic amenity sites), the special considerations to be applied to these sites are outside the scope of this guidance.

Organising for traffic safety

6 This guidance is not comprehensive. The Workplace (Health, Safety and Welfare) Regulations 1992 require traffic on sites to be safely managed. The advice below can help operators meet those legal obligations. It will help in producing traffic management risk assessments that are legally required. Realistic, workable and good quality procedures and traffic plans should follow.

7 Traffic risk assessments should also consider relevant legal standards, such as the Provision and Use of Work Equipment Regulations 1998 for the operation and maintenance of mobile plant, and the unique circumstances that exist, or could be reasonably expected to occur, on your site.

8 The process for carrying out traffic risk assessment is the same as for any other issue.

- List the hazards.
- Identify the risks associated with these hazards.
- Find out who may be affected.
- Assess the level of risk posed.
- Implement adequate control measures.
- Review their effectiveness.

9 These controls will include both:

- **physical measures**, such as road signs and markings; and
- **procedures**, such as a formal traffic management plan. A robust traffic plan will be of no use unless all involved are aware of it, and those responsible for managing traffic are competent.

10 The key areas for consideration are:

- pre-site entry issues;
- a safe site;
- safe vehicles;
- safe working; and
- safe workers.

Pre-site entry issues

11 Before any customers, contractors or other vehicle users arrive at a site, a series of controls to ensure good traffic management can be put in place. These include best practice for the control of contractors and co-ordination with customers and others visiting waste management sites.

Pre-contract issues for contracted work

12 **Selection** of contractor companies and their personnel entering your site is important. Before contracts are agreed upon, you should ensure they have the right level of technical and safety competence.

- Ask questions. If you have any doubts you should obtain **evidence** to back up their answers. Copies of licences and other certificates of competence should be available. You may need to ask other customers who have used their services for references. Past performance can be an indicator of future performance (eg accident, enforcement action and prosecution history).
- Obtain copies of legally required documents, such as health and safety policy statements, method statements and insurance details.
- Obtain copies of contractor licenses, CITB cards and similar evidence from contractors before they start work.
- Will extra training be required, and who is to provide it?
- Will supervision be required to ensure the tasks are done correctly and safely? Who will provide it?
- Co-operation between site and contractor on traffic issues is critical. Will the contracted work involve additional traffic movements or changed traffic flows? If so, have appropriate measures been taken and is everyone involved aware of the changes?

13 **Site rules** should be given in advance to contractors, so that any company providing personnel or services can make their staff aware of the procedures and

rules to be adopted. You should ensure that contractors' staff have received site rules before they commence work, and that they understand them.

14 **Thorough induction of all contractors** before they start work is required, even if site rules have been sent to contractors prior to work. This will include checks that they are all aware of any traffic issues and the risk control methods to be used.

15 **Directions** to the site should also be given to minimise risks to drivers who may be unclear as to its precise location. Directions and maps should be clear and unambiguous. To ensure this, you should make sure drivers can understand them.

16 **First point of contact** on arrival should be made clear. Contracting companies should pass on your information so drivers are aware of:

- where to park;
- where to go to report in; and
- who to report to.

17 **Safety specifications** for contracted or leased vehicles, plant and personnel should be stipulated and formally agreed. These will include requirements to fit safety devices such as reversing cameras, autosheeters etc as required.

Customers and other drivers

Regular contractors and visitors

18 Site operators should carry out adequate planning with contractors and regular customers before they commence work.

- Site rules (including traffic issues) can be sent to regular customers in advance for issue to their drivers. However, this method should not be relied on as site rules and other documents may not get passed to all drivers.
- Some site operators have held induction evenings for regular customer drivers to allow a more in-depth induction than may be practical during working hours.
- Establish clear feedback systems with regular customers on issues such as drivers breaching traffic rules.
- Directions to site, such as maps, can be sent to regular customers and may be useful to new drivers.

'Casual' and irregular visitors

19 It is recognised that pre-site entry planning with 'casual' customers and other drivers is more difficult. The above principles also apply to other visitors, such as school groups or customers auditing sites. Risk assessments for this type of visitor should take account of their relative lack of experience of waste management as they may be at higher risk.

20 Wherever possible, it is good practice to supply clear directions on where to park, where to report to and any hazard information before people arrive on site. You should also include general issues such as appropriate clothing.

21 New drivers and non-routine customers will inevitably arrive at sites. In these cases pre-planning is limited, but all of them should receive an adequate site induction covering traffic management issues and site rules.

22 It may not be practical to routinely check customer and similar drivers' licences etc, but ad-hoc and targeted checks should be made and recorded (see below under 'Driver checks and induction').

A safe site

Reception and site entrance areas

23 **Road signs** to the site entrance should be clear and bold. Any signs should be adequately maintained, lit where necessary, and unobscured by street furniture and shrubbery. Sign clarity can be an issue when many different items of information, such as personal protective equipment (PPE) requirements, are being presented. Use pictograms where possible and avoid confusion for drivers as the result of a 'forest' of signs (see 'Signage' below).

24 **Entry** to (and exit from) the public highway should be considered. Having visiting vehicles crossing lanes of traffic or making sharp, right-angle turns should be avoided, especially when entry is from a road with fast-moving traffic. To overcome these problems, some sites have installed dedicated slip-roads off the public highway. For drivers rejoining the public road, some sites stipulate that exit should be 'left turn only' to stop vehicles crossing opposing traffic lanes.

25 **Segregation** of lorries, plant and light vehicles should occur as soon as reasonably practicable. Separate delivery vans etc from heavy vehicle movements by dedicated routes and delivery areas.

26 **Marshalling areas** should be provided where drivers may need to queue. Control in such areas needs to be maintained to prevent drivers getting out of their cabs and 'wandering around'.

Visitors

27 **Segregation** of delivery and similar drivers, visiting members of the public etc from heavy vehicle traffic movements should be achieved by separate vehicle routes and parking wherever possible.

28 **Pedestrian routes** from visitor car parking to reception/offices should be clear and obvious to visitors. Their design and layout should separate pedestrians from vehicle movements and avoid the need for crossing vehicle routes wherever possible. See the 'Pedestrians' section below for further information on pedestrian crossings.

Weighbridges, induction and site rules

29 **Access** to the weighbridge should be simple and straightforward. On entering the site, clear signage should indicate where the weighbridge is, and what a visiting driver should do.

30 **Weighbridge and reception area** design should eliminate or minimise the driver's time out of the cab. Where achievable, a driver should be able to talk to the weighbridge staff and exchange documentation without leaving the cab.

31 **Safe access and egress** should be provided if drivers are required to leave their cabs and enter the weighbridge building.

- Suitable barriers or equally effective means should be provided to prevent other traffic encroaching over any pedestrian route between lorry and weighbridge door/window.
- Traffic should be controlled at this point to ensure correct queuing.
- Pathways and any steps should be of good construction and, so far as is reasonably practicable, be kept free from ice, mud and other contaminants likely to cause slips.

- Steps on and off weighbridges should have handrails.
- Consider lighting levels and painting step nosings with high-visibility paint.
- Footscrapers/scrubbers minimise mud transfer and reduce the risk of slips when drivers are getting into and out of lorry cabs.
- Weighbridge offices should be secure to eliminate possible assault from aggrieved drivers.

Driver checks and induction

32 The system adopted for the admission of waste vehicles to your site should confirm that drivers have:

- received appropriate induction information/training;
- understood the site rules and their duty to comply with them;
- appropriate documentation;
- PPE appropriate to your site and the work they have to do;
- directions – your site route marking can be supplemented by clear maps;
- knowledge of any special methods of work;
- understood the traffic hazards and any safety distances to be observed;
- knowledge of site rules and procedures in queuing, sheeting and other specialist areas;
- been made aware of unusual activities on site which may affect them;
- awareness of your enforcement procedures for non-compliance with site rules.

33 While it may not be practical to check all customer driver licences, vehicle condition etc, site employees should be aware that they should take appropriate action if they observe any obvious deficiencies or non-conformity with site rules, such as overloaded vehicles. Some sites 'quarantine' vehicles with obvious faults while the customer is notified and takes appropriate action.

Site layout

34 **Well designed sites** improve safety, ease of use and productivity.

35 **Review** the site layout periodically to take account of changes in work activities, traffic type, volume and circulation. Produce a traffic management plan which shows the routes to be followed – a map is better than a written explanation.

36 **Monitoring, maintenance and enforcement** regimes should be in place to ensure that the hardware and systems you originally provided still do their job, and are used in the way that they were intended to be.

Roads

37 **Design and construction** should encompass the following factors.

- Use one-way systems wherever possible.
- Routes should segregate heavy and light vehicles, and working plant.
- Avoid sharp bends.
- Avoid blind corners. Where these are unavoidable, provide mirrors to improve vision.
- Ensure good visibility for drivers along the road-line. Road edge limits may need to be either:
  - defined clearly (in open areas, eg by markers, cones, bunting etc); or
  - bunded/barriered (where there are open edges/faces/ditches/steep inclines etc).
- Construction should be appropriate to the traffic using the road and anticipated weather conditions.

- Avoid excessive inclines. They affect vehicle braking performance and erode more rapidly in poor weather conditions. You should aim for haul road gradients of no more than 1:10.
- Only use appropriate construction materials for roads.
- Ensure adequate compaction and drainage
- Exceptional circumstances may be encountered – safe systems of work should be devised in advance (with appropriate advice and guidance from others if necessary) to retrieve 'bogged-down' vehicles.
- Use bump banks or barriers where appropriate, such as on the edge of steep inclines, drops and on bends after downhill sections.
- Ensure the marking of routes is clear and unambiguous.

Signage

38 Place signs at the site entrance to indicate key site rules. Additional signs may be needed throughout operational areas. Use pictograms where possible and avoid confusing drivers with a forest of signs. Signs should:

- be clear;
- be maintained;
- conform to recognised standards such as road traffic signs (use road type signs wherever possible to avoid confusion) and the Health and Safety (Signs and Signals) Regulations 1996. They may need to indicate:
  - speed limits;
  - directions and routes;
  - required PPE;
  - one-way systems;
  - overtaking prohibitions and permissions;
  - traffic priorities;
  - traffic and pedestrian crossings;
  - areas pedestrians are banned from; and
  - zones where reversing cannot be eliminated and additional precautions need to be taken.

Pedestrians

39 Best practice is to **segregate pedestrians from traffic**.

Pedestrians and external roadways

- Provide separate routes or pavements for pedestrians.
- Where reasonably practicable, provide barriers at buildings' pedestrian exits to prevent pedestrians walking unexpectedly onto roads.
- Physical barriers to segregate pedestrians and vehicles are advised wherever reasonably practicable; but if pedestrians and vehicles **must** share the same route, it should be wide enough to allow vehicles to pass pedestrians safely and warning signs should be displayed.
- Provide suitable road crossing points for pedestrians. They should have good visibility on either side for both pedestrians and drivers, and can be marked with conventional black and white stripes. Avoid locating them on blind corners. Consider lighting, the provision of vehicle speed retarders and maintenance of any high-visibility paintwork.
- Where there are high volumes of pedestrian traffic, then consider, if reasonably practicable, subways, bridges and traffic lights, or a combination of these.
- Exclude pedestrians from vehicle loading/unloading, sheeting, tipping and reversing areas (see the 'Safe working' section below for further details).

Pedestrians and vehicles inside buildings

- Provide separate doorways for pedestrians and vehicles to ensure segregation.
- Barriers near pedestrian doorways can help to prevent pedestrians encroaching into vehicle movement areas.
- Incorporate vision panels in pedestrian doors so that vehicles can be seen before entry.
- Vehicles such as fork-lift trucks should be required to sound their horn when leaving buildings. To ensure that such a warning is always given, some premises have installed 'alarm strips' which activate a bell when approaching vehicles drive over them.

Materials reception buildings

- These buildings are high-risk areas and systems to control vehicle entry are needed.
- Some sites have used traffic-light entry systems controlled by the indoor plant driver or traffic controller, to good effect. Banksmen and traffic controllers in these areas are at great risk – try to design the area or work system so that they are not needed. Consider giving these personnel protected zones (eg by impact-resistant bollards).
- Pedestrians should not be allowed entry during plant movement unless they are protected by barriered routes.

40 To protect drivers, two methods of loading/unloading can be used:

- drivers should remain in the safety of their cab at all times while vehicle movements are occurring; **or**
- drivers should leave their cab and remain in a safe area (eg a driver rest room) before mobile plant movement commences. Driver safety during tipping is discussed in more detail in the 'Safe working' section.

41 Where drivers must leave their cabs to perform essential tasks (such as opening container doors, operating discharge controls etc), adequate safeguards should be in place to protect them. These may include:

- high-visibility clothing being worn at all times;
- adequate separation distance between the vehicle and other vehicles or plant in the area – no moving plant or vehicle should be within 5 m of any pedestrian;
- limits on the number of vehicles allowed into an area to preserve separation;
- distances;
- a requirement for all plant to cease moving or operating when a vehicle is discharging;
- only one person to be allowed out of any multi-person vehicle cab to perform essential duties;
- site rules to ensure that drivers remain as close to their vehicle as possible (even when performing essential duties).

Tipping and discharging loads

42 Distances between vehicles while tipping or discharging should be determined and maintained. The distances required will depend on the type of vehicle, but the following risks should be included in any assessment:

- vehicle fall-over;
- swinging container and vehicle doors;
- ejection of wastes;
- operation of door/container opening mechanisms; and
- the nature of the ground in the tipping area.

Safe vehicles

Selection and fitness for purpose

43 **Safety specifications** of vehicles used on site are essential. Vehicle capabilities and site conditions have to be consistent with the tasks performed. The variables involved are too complex for this guidance. A full risk assessment will be required to ensure that the task can be done safely. Stability and ground clearance of vehicles should be adequate for site conditions and tasks.

44 Vehicles should be provided with suitable means of access and egress, including cab access, for routine tasks.

45 **Reversing** is a high-risk activity. The site should be laid out so as to eliminate or minimise the need to reverse wherever possible. Where reversing is required, all-round vision is essential wherever achievable. Closed circuit TV (CCTV), additional rear-view mirrors and reversing alarms (or a combination of these) may be required as part of the controls in place to reduce the risks of reversing.

46 Many operators are now only purchasing new vehicles with CCTV fitted and are retro-fitting existing vehicles based on risk assessment. They are also finding that the damage reduction and increased productivity achievable by fitting CCTVs is a worthwhile return on investment.

47 **Roll-over protection** (ROPs) should be provided to protect the driver in the event of vehicle rollover. This protection is also required for smaller mobile plant that may be used on site (eg dumpers, tractors etc)

48 **Falling object protection** (FOPs) should be consistent with the risks. Particular attention should be paid to loading tasks.

49 For some tasks, the vehicle cab may not be sufficient to protect a driver unless it has been specially reinforced. You should consider the adverse effects of providing extra reinforcement and the potential for obscuring rear vision, especially through rear windscreens. Examples include the loading/unloading of some metal scrap and demolition debris and the use of heavy grabs and shovels in the vicinity of the cab.

50 **Seatbelts** save lives. Fitting seatbelts and enforcing their use can dramatically reduce injuries and fatalities in overturns and collisions. Brightly coloured, high-visibility seatbelts can make it easier to enforce their use.

51 **Seat design** is important in the avoidance of back and other musculoskeletal problems. The correct adjustment of seats should be a part of operator training.

52 **Body props** should be provided on tipper vehicles. Using body and door props should be part of site rules. Their use should be monitored and enforced.

53 **‘Outside of cab’ controls** pose specific risks. They potentially expose the driver to other moving vehicles. External controls are not advised for tipping vehicles with a risk of fall-over. Many vehicles with external controls are designed for one-person operation, with the operator in a safe position when at the controls. Others in the area may not be so well protected and should be kept clear.

54 **Other safety equipment** may also be required as determined by risk assessments, such as ‘impact grilles’ on plant windscreens, door props/clasps etc. They should all be part of your risk assessment and plant specification process.

55 **Vehicle maintenance**, regularly carried out to a good standard, is essential. It ensures that the safety features are working and can help in reducing noise and vibration.

Sheeting and specific hazards
56 Further comment on sheeting and unsheeting is made in the 'Safe working' section below, the Environmental Services Association's (ESA's) 'position statement' on sheeting and HSE web page:
www.hse.gov.uk/workplacetransport/information/sheeting.htm.

57 Many companies have instituted plans to ensure:

- all new vehicles should be fitted with autosheeting equipment; and
- existing vehicles are part of a retro-fitting plan based on risk assessment.

58 Some companies are revising their contracts with hauliers to ensure that only autosheeted vehicles will be permitted on site.

Containers
59 Container types and designs of door-locking mechanisms should be selected to be appropriate for the task. Violent door release has caused amputations and other serious injuries. Loads can move or settle and 'pressurise' the door. Damage to containers can lead to doors being 'sprung', presenting the same risks.

60 Use of ratchet and remote door-opening devices can reduce the risks associated with sprung and/or pressurised doors. Safe systems of work to deal with sprung and pressurised doors need to be in place. Containers should be of good construction, free from patent defect and constructed to appropriate standards.

61 Containers, their general integrity, and the condition of their doors, hinges, opening mechanisms, lifting lugs and other points are safety-critical. They should be visually inspected regularly by drivers. A formal defect-reporting system is expected for containers. Defective container 'quarantine' areas at transport operation sites will assist in ensuring that drivers do not use damaged containers by mistake.

Maintenance, daily checks and defect reporting
62 **Daily and weekly vehicle checks** should be carried out for defects. Minimum standards for such checks would include compliance with the Road Traffic Acts (where applicable), other statutory requirements and manufacturers' specifications. They should incorporate brakes, lights, tyres, steering, and all-round vision. Keep a record of these checks. Statutory inspections need to be programmed and carried out.

- Defect reporting is essential.
- Scheduled maintenance should be carried out according to manufacturers' specifications.
- Maintenance and legally required test records should be kept.
- More regular maintenance schedules than specified may be required, depending upon the activities carried out and the environment a vehicle works in.

Visitors and customer vehicles
63 Customer vehicle design and condition is a valid safety concern for site operators. On landfill sites, vehicle design can affect the safety of tipping operations. Ultimately, site operators may choose not to allow unacceptable vehicle types on their site. The risks posed by tipping lorries (such as fall-over) need to be controlled. All vehicles with obviously unsafe defects should be brought to the attention of the driver and their employer. Close co-operation and communication with customers on vehicle types can reduce the risks.

Safe working

Tipping activities and areas

64 Tipping is a high-risk activity and the enforcement of rigorous rules is essential.

Entry to the tipping area
65 **Control** should be exercised over entry to the tipping zone to minimise the risks associated with plant/vehicles moving in close proximity to each other.

66 **Marshalling** vehicles may be necessary.

67 **Communications** should be clear and unambiguous.

68 **Systems** can involve traffic lights or other clear signage to ensure that entry is prohibited until it can be achieved in a safe manner. Some sites use radio contact between parties.

69 **Control** of the decision to allow entry should be with a single individual (a 'traffic controller') to avoid confused signalling. This may be a plant driver at a small tipping zone, or a separate dedicated individual at larger sites, such as a traffic controller in an impact-protected 'sentry box' controlling access to a tipping zone. Drivers should be made aware of the meaning of signals to be used.

70 Traffic controllers should:

- be located away from tipping areas – their task is to control access to the tipping area, not to be on the tipping area;
- wear high-visibility clothing; and
- have sole and absolute control of vehicle movements.

71 All drivers should be aware and clear of:

- the role of the traffic controller;
- their duty to obey his/her instructions;
- what signals will be used and what these mean;
- the disciplinary consequences of non-compliance; and
- what signals will be used and what these mean.

Vehicle movements

72 Drivers should only be permitted outside their cabs when they absolutely need to be (eg to open doors, operate controls etc) and then only when:

- they are wearing high-visibility clothing and appropriate footwear with protective/steel toe-caps and mid-soles may be needed;
- they keep in close proximity to their vehicles;
- plant/vehicle movements have ceased; **or**
- sufficient distance between pedestrians and moving plant/vehicles has been ensured – a minimum of 5 m is recommended.

73 Sometimes FOPs and cab protection can be insufficient, for example when unloading heavy items (steelwork/demolition materials), or when using grabs/buckets in close proximity to the cab. In these instances, unloading should be carried out with the driver in another location, away from the loading area.

Reversing

74 A well-designed and laid out site will have eliminated or reduced the need for reversing.

75 Where reversing cannot be eliminated, the following issues should be addressed.

76 **Good all-round vision** should be achieved. Closed circuit TV (CCTV), or mirrors, or a combination of both, should be fitted; the use of CCTV (reversing cameras) or mirrors alone may be insufficient. They should be checked at least daily and maintained in good working order.

77 **Audible warnings should be used** - don't rely on reversing alarms. They may be a useful additional safeguard when risks cannot be adequately controlled by segregating pedestrians from vehicle movements, or by eliminating unnecessary reversing. But they may not be heard by everyone, and on a busy, noisy site they can become part of the background noise or cause confusion when many vehicles are reversing.

78 The environmental impact of the noise and operating times may have to be considered. Alternatives to the standard 'bleepers', such as 'warbling' or 'white noise' reversing alarms, may be used.

79 **Guiding vehicles by banksmen** is a very high-risk activity that should be eliminated where reasonably practicable by improving site layout or providing suitable visibility aids.

80 Where banksmen are **absolutely essential** for the safe running of a site (this is a decision which can only be arrived at by risk assessment), then:

- they should be adequately trained;
- they should wear appropriate, high-visibility clothing;
- they should be in view to the driver at all times during vehicle movements;
- they should be at a safe distance when vehicles are moving or tipping;
- signalling conventions used should be understood by drivers before vehicle movements under the controller's directions begin;
- their instructions should be obeyed by drivers; and
- the system should be enforced to ensure compliance.

If, at any time, the banksman cannot be seen – the driver should stop!

81 Even with the above in place, the use of banksmen will still incur risks and their use should only be a last resort.

Tipping

82 **Safety distances** between vehicles when tipping/discharging should be maintained. A **minimum** distance between vehicles of 1.5 vehicles' width should be achieved but, wherever reasonably practicable, the following **minimum** distances are considered appropriate:

- 5 m between push-outs;
- 7 m between other, non-articulated vehicles;
- 16 m between articulated tippers.

83 **Tipping methods** need careful consideration to avoid accidents such as fall-overs. Vehicle stability should be ensured at all times during tipping. This is a

combination of ground conditions and vehicle. Tipping faces at landfill sites need to be well maintained, as do concrete and other surfaces in transfer stations and other facilities. Gradients, potholes and other defects can affect stability.

84 Overloaded and badly loaded vehicles may need special handling – or may need to be 'dug out' by plant rather than being allowed to tip. Customers should be kept informed of overloaded and badly loaded vehicles to prevent recurrence. Sanctions may need to be imposed on repeat offenders.

85 Vehicle stability can also be affected by ways of working. Techniques such as 'jogging' are not safe practices and should be eliminated – it is preferable to dig out loads that are jammed than try to release them by jogging (see advice below on jogging).

86 Caution should be exercised when opening doors as moved and settled contents can exert pressure upon them. Damaged doors can be 'sprung' and present similar hazards. Sites need to have procedures in place to deal with such foreseeable problems.

87 Remote door-opening devices remove some of the risks. Personnel should, wherever possible, stand outside the arc of the door and away from the discharge path. Where this is not possible, the driver should use the door as a 'shield' to protect against falling waste. Once it is partially open, the driver should move outside of the arc of the door.

88 **Jogging** of vehicles to free blocked material (shunting, or driving the vehicle and braking hard) in an attempt to shock or jog the load free to remove blocked material from containers is a high-risk activity and is to be avoided.

- Jogging can cause uncontrolled release of the bin.
- Repeated jogging places undue wear on the hydraulic cylinders, load hook and bale bar.
- Repeated wear may result in failure of the cylinder seals or shaft components.

89 As part of site induction, drivers should be instructed to abort tipping if problems occur and seek the advice of site staff. Site operators need to have safe methods in place for dealing with foreseeable problems, such as bridged loads, rather than allowing drivers to devise their own methods.

90 **Skip unloading** presents its own hazards and requires the following robust levels of control:

- Work on stable ground – avoid sloping, uneven or soft ground.
- Apply the handbrake.
- Use chocks on slopes where necessary (it is better to select vehicles with four-wheel braking, or fitted with rear stabiliser pads rather than wheels, where slopes are anticipated).
- Use stabilisers - keep braked rear wheels on the ground when on slopes.
- Avoid trapping between the skip and vehicles/walls. Keep a clear space all-round.
- Sheet/unsheet safely – do it from ground level where possible. Use autosheeters or gantries/harnesses where provided.
- Avoid climbing on the vehicle.
- Check lifting points, chains and skip for condition before moving the skip.
- Hooks, chains, lugs, bars etc should be fully engaged.
- Chains should not be twisted/knotted. They should not snag during load movement.
- Skip floors/panels/hinges etc should be in good condition.

Landfill site tip faces

91 **Regular maintenance** is required to ensure that vehicle access at the tipping face is level and adequately compacted.

92 **'Bump blocks'** should be provided to prevent vehicles falling rearwards where tipping is to be carried out at sharply graded tip faces and into vertical-sided reception pits – such situations should ideally be avoided.

93 **Stability aids** (outriggers, stabilisers, handbrakes etc) should be used during the tipping operation.

Sheeting and unsheeting

94 Workers have been killed by falling off vehicles while sheeting and unsheeting. The risks are increased in poor light levels and weather conditions.

Autosheeters

95 The best solution is for vehicles to be fitted with automatic sheeting systems (autosheeters). They remove, or reduce, the risks of:

- sheeting - both on and off site;
- walking on loads where there is the risk of tripping or falling into hidden voids.

96 Progressive site operators are moving towards autosheeting over the next few years by planning to:

- ensure all new vehicles purchased have autosheeters;
- retrofit existing vehicles with autosheeters in a phased manner; and
- renew contracts only with hauliers who have autosheeters fitted.

97 Where autosheeters are used, there is the potential for the mechanism to snag during operation. Suitable methods, access equipment and supervision should be in place to enable the remedy to be carried out safely.

Working platforms and gantry/harness systems

98 These systems are to be used when sheeting/unsheeting has to be carried out on high vehicles that are not fitted with autosheeters. They can effectively reduce the risks, but have the following disadvantages.

- They may be cheap to install, but the running costs of maintenance, training and supervision can be high.
- They cannot reduce the risks off site.
- They are difficult to move around site.
- Regular maintenance and thorough checks for wear and tear are needed, especially of harnesses.
- Training needs to be given to all employees and visitors who are expected to use them.
- Supervision is often required to ensure that they are correctly used.

Parking trailers

99 With **traditional** braking systems:

- mechanical brakes should always be used whenever trailers are uncoupled from tractor units;
- do not rely on residual air pressure left in the braking system which could leak out and deactivate the brakes;
- drivers picking up a trailer unit should check that mechanical braking systems are engaged before docking, so as to prevent runaways.

Exiting the cab

- Alighting from vehicles should adopt the 'three points of contact' procedure, ie three of the hands/feet should remain in contact with either the vehicle or ground. Any hand-holds and steps provided should be used to ensure that exiting the cab is done in a controlled manner.
- Jumping out of the cab frequently leads to twisted ankles and broken legs. In some circumstances, it can put the driver off-balance and place them in the path of other moving vehicles nearby.
- People should ideally wear footwear with good ankle support.

Leaving the site

- Check the vehicle. Is it damaged? Is it fit for road use?
- Are vehicle backs and doors secure?
- Are lifting arms on skip vehicles and containers lowered?
- Are chains secured?
- Are outgoing loads secure, sheeted etc?
- Are lights and windscreen clean? Make sure you can see and be seen.
- Where necessary, clean the vehicle so as to minimise mud on the road and debris deposited on public roads – use wheel/vehicle washes.
- Check for debris in tyre treads which may be ejected on the public highway.
- Access the public highway safely – do vehicles need to turn right across heavy traffic or would a left turn be better?

100 For many sites, vehicles will arrive full and go away empty, but this is not always the case for transfer stations, recycling facilities and customer sites. The safe loading of lorries is critical both for driving on the public highway and tipping and discharging operations at a receiving site.

101 Badly loaded or overloaded vehicles present obvious hazards – from waste falling onto the public highway to tipping problems at a receiving site. Adequate feedback systems should be in place to communicate any problems and ensure that they do not recur.

Safe workers

102 Competent operators are required to ensure safe, effective and stringent levels of traffic management. Clear statements of responsibilities and duties should be made, along with clear rules to follow. Monitoring and feedback systems should be in operation to ensure that the systems are used correctly.

103 **Job descriptions and responsibilities** should be agreed, written and recorded. All site staff should have clearly laid-out safety responsibilities. These may be in job descriptions or similar documents and should be specific rather than just a general statement. In particular, all site staff should be aware of and accept their responsibility to enforce site rules, including traffic management.

104 **Initial training and induction** of all site staff should include traffic management issues and site rules. This training should include non-operational staff such as weighbridge operators and reception staff.

105 **Visiting drivers** require training. The level of this training may need to be assessed. Their training needs may be minimal, such as ensuring they are aware of and understand the signalling protocols and systems. In other cases, their training needs may be greater, such as training in how to use unsheeting harness equipment correctly.

106 **Specialist training** for staff specifically involved in traffic management may also be required, such as traffic controller or banksman training. In this high-risk area, the competence of staff is vital. All such training should be recorded.

107 **Assessment of training effectiveness** is crucial, particularly for training for staff involved in high-risk tasks (such as banksmen). A simple induction is not enough for such tasks.

108 **Refresher training** and induction to maintain safe working should be given for all staff whenever the traffic plan changes or at least once a year. This may include re-induction on site rules and traffic management plans, or more specific issues. Reassessment for specialist staff should be carried out, as is the case for training such as plant operator assessment.

Site rules – multiple sites

109 Many larger companies have common site rules booklets that apply to several sites. Such booklets are useful in ensuring good practice is spread across sites. Individual sites may need to add to such common site rules booklets to account for their specific circumstances.

Monitoring and supervision

110 Having a well thought-out and understandable traffic management plan will be of little use if its application is not monitored and enforced (see below). Traffic management should be part of routine site inspections and any breaches of rules and systems targeted for remedial action. Accident and incident reporting systems should include traffic accidents and near misses.

111 Site inspections should include traffic issues such as the following.

- Speed – are speed limits being obeyed?
- Designated routes and areas – is traffic following the appropriate routes without confusion or any deviation? Is the separation of pedestrians and traffic being maintained?
- Seatbelts – are plant and vehicle drivers wearing them?
- Tipping and safety distances – are these being obeyed?
- Signs and road markings – are these still visible, clean and in the right places?
- Reversing and other rules – are these being obeyed?

112 The results of all monitoring activities should be recorded and any required remedial actions carried out.

Enforcement/disciplinary procedures

113 Site staff should be clear that it is their duty to ensure compliance with traffic management rules. This should be backed by a clear management commitment to support site staff when they do enforce the rules. Site operators are responsible for what takes place on their sites – traffic accidents are one of the most common causes of fatalities at work. Clear, consistent enforcement and disciplinary procedures should be in place.

PPE and its use

114 PPE is the least acceptable control and should be considered a last resort. However, at waste management sites it does have a role to play for site operatives, drivers and visitors. Signs indicating the required level of PPE should be in clear view and PPE requirements should be in site rules. Everyone from senior

management to visiting drivers should wear the appropriate PPE – there should be no exceptions.

115 While risk assessment will be the basis for deciding the level of PPE required, the recommended minimum is:

- high-visibility clothing;
- suitable overalls or similar – not shorts;
- safety boots with reinforced toecap and mid-sole (lace-up boots with good ankle support are to be preferred over 'rigger' boots which offer little ankle support);
- hard hats in any area where head injuries are a potential risk – this would include all tipping faces and areas (bump caps are not hard hats and do not adequately protect wearers from falling objects);
- suitable gloves for manual tasks;
- suitable respiratory protection (may be required depending on risk-assessed likely conditions);
- safety glasses or goggles for tasks where ejected waste is a potential risk.

Monitoring, review and feedback

116 **Day-to-day monitoring and enforcement** of site rules by all employees is crucial. Monitoring of traffic management as part of site inspections is also an important aspect of control.

117 Monthly formal site inspection checklists should include traffic management issues, and any deficiencies need to be placed in improvement systems with clear feedback and tracking of actions. Information on changes to traffic management plans should be given to site staff, customers and contractors.

118 As with all hazards, traffic issues need to be assessed for their potential risk, and from this process adequate systems and procedures to control the risks should be put in place. The depth to which such traffic management plans go into will depend on the complexity and size of site. However, as they cover one of the major risks faced on waste management sites, it would be expected that traffic management plans will be some of the most comprehensive documents held.

119 **Review** of traffic management risk assessments should take place if any significant change takes place. This may include significant changes in waste types, numbers of vehicles accepted, any engineering projects or movement of tipping face on landfill sites, changes in storage at recycling plants or any other change which may affect traffic flows and management.

120 Even if no significant changes have occurred, traffic risk assessments should be reviewed annually.

121 **Feedback** on traffic plans should be given whenever any changes are made to traffic management systems. All site staff involved should be informed of the changes.

122 Traffic management should be a routine feature of training, instruction and information systems such as toolbox talks and briefings to staff. Simple changes may be addressed by updated signs and other measures. However, more extensive changes may require revision of site rules booklets and reissue to, and re-induction of, site users.

The Waste Industry Safety and Health forum (WISH) exists to communicate and consult with key stakeholders, including local and national government bodies, equipment manufacturers, trade associations, professional associations and trades unions. The aim of WISH is to identify, devise and promote activities that can improve industry health and safety performance.

Further information

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This document contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

This document is available web-only at: www.hse.gov.uk/pubns/waste09.pdf.

Published by the Health and Safety Executive Waste09 05/07 17 of 17 pages