



Seed Crushers'
and Oil Processors'
Association

Preventing Falls From Road Tankers

**A guidance publication issued by
The Seed Crushers and Oil Processors' Association**

Issue 1

April 2004

Published by

**The Seed Crushers and Oil Processors' Association
PO Box 259
Beckenham
Kent
BR3 3YA**

**Tel: 020 8776 2644
Fax: 020 8249 5402
E-mail: lynda.simmons@scopa.org.uk**

First Edition 2003

The guidance document was drawn up by The Seed Crushers and Oil Processors' Association (SCOPA) in consultation with the Health and Safety Executive (HSE).

<u>Contents</u>	Page
Foreword	
1. Introduction	4
2. Scope	4
3. Definitions	5
4. Legislation and Guidance	5
5. Risk Assessment	6
6. Control Measure Hierarchy	7
7. Design Options	
7.1 Eliminate Top Access	10
7.2 Design of Tanker Stations and Access Gantries	11
7.3 Safe Access as part of road tanker design	13
7.4 Fall Arrest equipment	16
8. Top Filling Equipment	18
9. Safe Systems of Work	19
10. Recommendations	20
11. Appendix	22

Foreword

Falls from a height, including falls from road tankers, comprise one of the three main causes of fatalities in the food and drink industries.

This guidance, produced by the Seed Crushers and Oil Processors' Association in consultation with the HSE, is a helpful step by the edible oil industry to address this problem. The guidance expands on HSE Food Information Sheet 21 'Workplace transport safety in food and drink premises' and FIS 30 'Preventing falls from height in the food and drink industries'. It sets out the legal framework and control hierarchy which aim for the eventual elimination of top access.

This document recommends best practices to help the edible oil industry in reducing injury risk further. It will also be circulated to HSE inspectors so they may use it as an indication of reasonably practicable standards.

Guidance has also been taken from the Road Haulage Association (Jan 2003) with their safety recommendations, built into both future new tankers design and retrofit of existing fleet.

SCOPA would like to thank The Scotch Whisky Association for allowing their industry guidance publication to be used as a model for this document.

1. Introduction

Within the UK, falls from the top of road tankers have resulted in numerous fatalities and major injuries. Given the high volume and routine use of these vehicles within the edible oils industry to transport bulk crude, semi refined and refined vegetable oils it is essential we ensure that the inherent risks are properly managed.

Effective management of the risks requires systematic identification, assessment and control. With this purpose, an industry working group was set up to identify the more common hazards likely to contribute to a person falling from the top of a tanker and provide examples of good practice control measures already in use (within or external to the industry).

This document is therefore intended to:

- provide clear guidance
- assist member companies to evaluate their existing arrangements
- facilitate a future strategy to progressively lower the level of risk.

As the use of road tankers is well established and individual companies have over time developed their own access arrangements, a single solution was not feasible and a range of options have been addressed. Ensuring safe access is the responsibility of individual companies and is based on operational requirements and risk assessments specific to the premises.

2. Scope

The extended range of safety risks associated with road tankers is significant e.g. traffic management, roadworthiness of the vehicle, spillage & containment but these are not addressed in this document. This guidance document focuses exclusively on the risks associated with falls from height whilst accessing road tankers/ ISO tankers to complete routine activities, i.e. filling, dipping, sampling, internal cleaning and discharging operations.

The scope addresses options to -

- eliminate or reduce the frequency of top access
- enable safe access via tanker stations and access gantries
- enable safe access by using fittings on the road tanker
- increase level of safety by providing fall-arrest type equipment

3. Definitions

- Road Tanker:** A vehicle that has a tank whose capacity is greater than 3m³ and which is structurally attached to or is an integral part of the vehicle.
- ISO Tank:**
(De-mountable) Comprises a cylindrical tank mounted within a sturdy rectangular steel frame. The tank capacity is greater than 3m³, is not structurally attached to, nor is an integral part of the vehicle.
- Tanker Station:** Custom-built facility designed to provide access and all other operational needs associated with road tanker loading and unloading activities.
- Access Gantry:** A simple structure, typically attached to an existing building, to provide access onto the top of a road tanker.

4. Legislation & Guidance

Whilst this list is not exhaustive, the following legislation and guidance is applicable. See Appendix 1 for further details.

Statutory Responsibilities

The Health & Safety at Work etc Act 1974

The Management of Health and Safety at Work Regulations 1992

- The Workplace (Health, Safety and Welfare) Regulations 1992

The Lifting Operations and Lifting Equipment Regulations 1998 (known as LOLER)

The Provisions and Use of Work Equipment Regulations 1998 (known as PUWER 98)

Good Practice Guidance

HS (G) 136 Workplace Transport
HSE Guidance Note GS26 (Nov1983)

BS3441 (1995) Specification for Tanks for the Transportation of Milk and Milk Products.

5. Risk Assessment

The typical hazards that would normally be recognised by risk assessments have been identified within this section. The assessment is generic and deals with the more foreseeable hazards. This list of hazards is not exhaustive given unforeseen circumstances that may exist at particular sites, so it is recommended that individual sites complete their own risk assessments.

A key factor is the method by which the road tanker and site facilities work together. For example, a road tanker with no safety handrails can be safely accessed by guarded gantries. Conversely, the road tanker station design can prevent proper use of handrails on otherwise safe road tankers.

Typical Hazards – Loading/Unloading Road Tankers

<u>Process Step</u>	<u>Fall Hazard</u>	<u>Control Measure</u> (Section)
1. Park/present or despatch tanker	Positioned in a manner that compromises access arrangements (i.e proper use of fixed gantries).	7.2
2. Immobilise road tanker	Road tanker being driven off unexpectedly Unplanned free movement of vehicle Landing legs of road tanker collapsing without warning.	7.2 & 9
3. Access onto road tanker from gantry	Unfenced openings on tanker station/access gantry. Inadequate guarding provided whilst on top of tanker. Absence of appropriate fall arrest equipment. Overhead obstructions.	7.2 7.2 7.4 7.2
4. Access onto road tanker without access gantry	Inadequate access steps, handrails and/or walkways provided on the road tanker. Absence of appropriate fall arrest equipment.	7.3 7.4
5. Breaking seals & Opening top hatches	Walkway obstruction caused by top hatches.	7.3
6. Inspection	Fall into vehicle Exposure to nitrogen could cause asphyxiation	7.1 & 9
7. Dipping	Increases the risk if the operator has to lean outside the safe area to reach the dipstick.	7.1, 7.3 & 9
8. Sampling	Increases level of risk due to need to carry containers whilst on the top of the road tanker.	7.1 & 9
9. Top Filling Operations	Requirement to reach and handle pipes/hoses Increases likelihood operator will lose balance. Trip Hazard caused by filling equipment.	8
10. Bottom Filling Operations	Falling Hazard eliminated	7.1

- | | | |
|--|--|---------|
| 11. Close/seal road tanker | No new risks, but increases the access frequency. | 7.1 & 9 |
| 12. Internal cleaning of Road tankers | Contracted to 3 rd Party suppliers of wash station facilities | |

6. Control Measure Hierarchy

6.1 Alternative measures

Achieving a safe standard will normally require the implementation of more than one risk reduction measure. In practice this range of potential controls follow a hierarchy based on effectiveness,

- | | |
|--|--|
| Eliminate | The most effective way to minimise risk is to totally eliminate the need for access to the top of the road tanker. This solution may create practical problems, but is the best option from a safety perspective. |
| Reduce | Reducing the number of visits to the top of the road tanker will achieve a corresponding risk reduction. |
| Control | Engineering solutions fitted to the road tanker or the tanker handling facility intended to minimise the risk of falling. |
| Procedures | The development and adherence to safe operating procedures/work instructions that communicate how to minimise risks by adopting safe working practices. |
| Personal Protective Equipment (PPE) | Personal protective equipment can be justified under two circumstances: when all other control measures have been considered and a significant risk still exists; when it is used as a short term measure until a permanent solution is installed. |

6.2 HSE Advice on best practice

Best advice on the control hierarchy can be made with reference to HSE Circular 'Prevention of Falls from Road Tankers' (HC/Tech/Safety/14 : July 2000).

Bottom loading of vehicles is preferred, although it is noted that there are some practical issues in clearing of hoses.

'If bottom loading is not reasonably practical' then gantries or safe access platforms should be provided at loading points where loading takes place several times a week. Where a tanker is loaded at a fixed gantry, personnel should be protected from falling by secure fencing (not portable staging).

Tanker top access is often required at locations where building of repeated fixed gantries is not reasonably practical (e.g. where loading or unloading takes place very infrequently at various points on a factory site). In such cases, the alternative of

providing secure fencing on the tanker should be possible. For walkways that are on one side of the tanker top (well below the crest of the tank) the open side should be protected, for example by an erecting handrail with mid height rail.

For walkways along the crown of the tank and all sides open, protection (e.g. erecting handrails with mid height rails) should be provided on both sides and at the far end - more detailed advice is given in section 7.3.1.

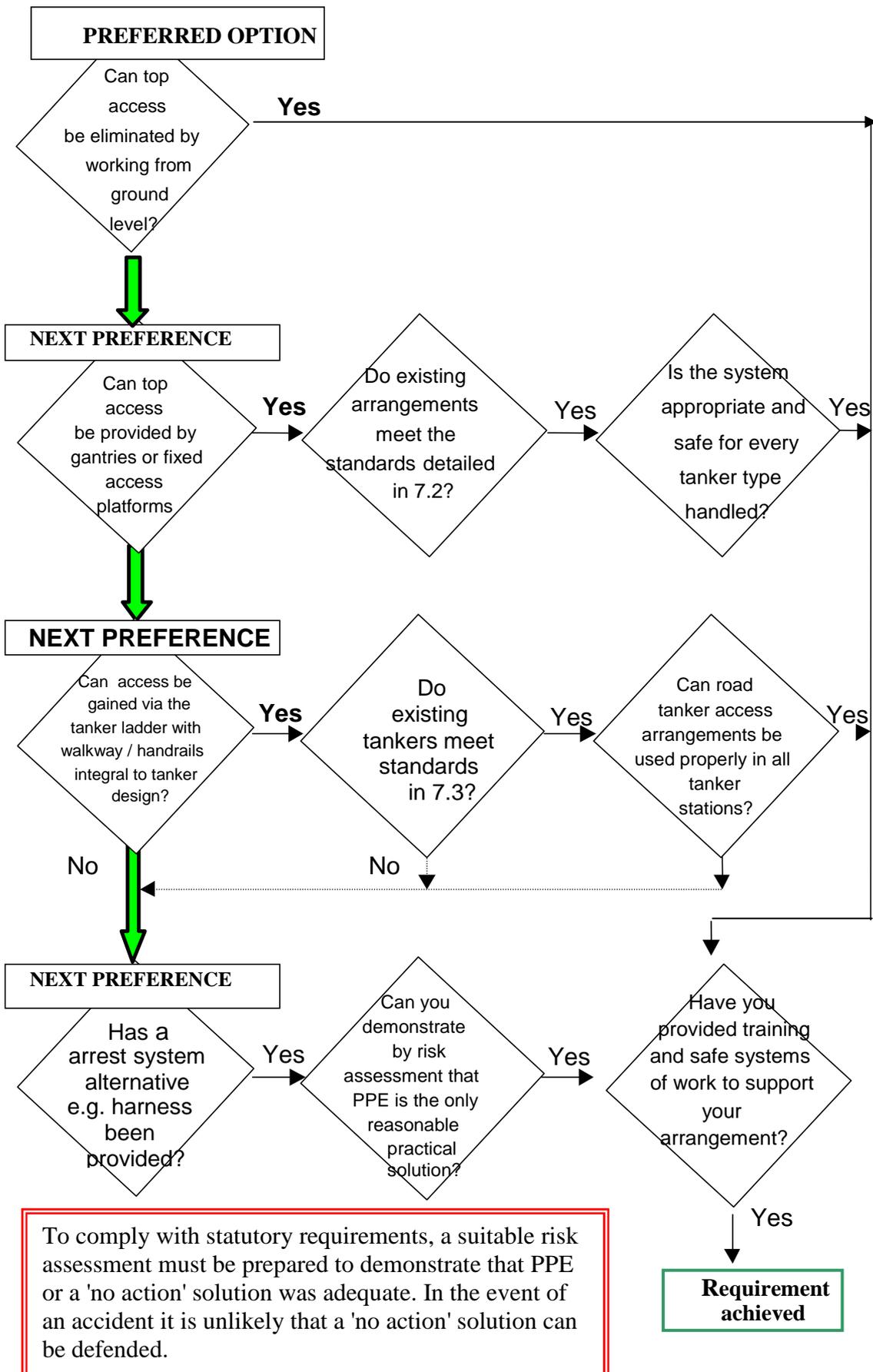
The use of fall prevention and fall arrest PPE systems should only be considered if secure fencing is not practical. All the associated problems of PPE must then be managed, from fixing of additional brackets to the tanker, to availability of suitable anchor points to site based structures and the training, supervision, maintenance and testing of all equipment.

6.3 Risk assessments

Measures taken are normally determined by risk assessments carried out on a site by site basis. The key element of this exercise is the selection of appropriate control measures to reduce the level of risk to *as low as is reasonably practicable*.

The identification of what constitutes “as low as reasonably practicable” remains with individual companies, the guiding principle being that a balance must be struck between the quantum risks on the one hand and the sacrifice, whether in money, time or trouble on the other. If there is a gross disproportion between them the responsibility is placed on the company to demonstrate that compliance was not reasonably practicable. While this recognised legal standard expects site management to make judgements based on knowledge and experience, it will not defend situations where serious and imminent dangers are ignored. Equally there is no defence where low cost or simple solutions would result in lesser risks.

6.4 Decision Tree - Prevention Measures against Falling from Vehicle



7. Options

7.1 - Eliminate Top Access Requirements

General Description

Avoiding the need for access to the tops of road tankers will eliminate all risks associated with falls. To achieve this, all road tanker top activities must be substituted by ground based work methods. Experience shows that individual companies have used procedures at ground level, but there are exceptions that still require limited top access.

Advantages

- completely eliminate all fall risks
- eliminates the need for access gantries

Limitations –

- current practice to use top access in order to clean, inspect, sample and seal the tanker
- bottom filling is not a common standard within the UK refinery industry for multi-product loading stations - potential problem of fat residues setting up in loading lines and product cross contamination. Lines need to be cleared, and compressed air blowing of lines directly connected to tankers needs to be carefully controlled, to prevent tanker overpressure.

Current need for top access

Cleaning

This is largely a third party supplied service, but tanker washing is still relevant to some sites. In general cleaning requires spray balls to be fitted to the top of the tanker or inserted into manway, requiring top access.

Tanker inspection

When loading road tankers, under current EU Food Regulations ⁽¹⁾ then reasonable checks need to be in place to assure that ' bulk food containers are kept clean and in good repair '. A check is required at some point in the supply chain – current practice is for the oil supplier to carry out a visual inspection through the top tanker manway before loading, thereby needing top access to the tanker.

⁽¹⁾ Reference: Hygiene of Foodstuffs, Council Directive 93/43/EEC Jun 93

Sampling during loading

Some companies are contractually obliged to take top samples - until common guidance can be issued to use tanker bottom samples as reference.

Closing / Sealing Road Tankers

Currently a large number of tankers use manual sealing which can range from 2 or 3 seals up to 20 seals (i.e. manway, outlet valve, etc).

Some of the more modern tanker fleet have central locking operated from ground level. Locking systems can be sequentially activated to ensure all openings are closed and locked. An electronic or manual seal (or both) can be recorded at a single central point on the tanker.

Sampling before discharge

Tanker contents before discharge are sometimes sampled via the tanker manway (quality or reference sample). Practice could be for all samples to be taken from the discharge valve, which eliminates the need to access the top of the road tanker

Dipping

If the tanker has to be dipped by conventional means, to determine volume of contents, then there seems to be little alternative to accessing the top of the road tanker.

7.2 Design of Tanker Stations/Access Gantries

General Description

Provision of a fixed steelwork gantry designed to provide a controlled working environment that minimises the risks of falls from height. Building any form of protection is less effective in that it controls, rather than removes the risk of falls.

In practice, achieving a universal safe design of tanker station or access gantry is a difficult task given the range of road tanker and ISO tank designs that have to be accommodated. Older tanker station/access gantries will frequently increase the level of risk, particularly where it restricts the free use of road tanker handrails.

Advantages

- road tanker stations already exist
- guarding is more robust than that provided on a road tanker.
- benefits other than fall protection e.g. spillage control; weather protection etc.

Limitations

- cost
- difficulty in providing safe access for all tanker designs.
- difficult to upgrade, modify or relocate

Essential Safety Requirements:

Parking Road Tanker

Where alignment of the tanker and gantry is critical to ensure safe access, the roadway should be marked with alignment markings.

Immobilise Road Tanker

The road tanker must be immobilised to prevent unplanned movement. Means of immobilisation could include:

- traffic light system
- road barriers e.g. free standing sign placed in front of tanker
- warning sign attached to the vehicle steering wheel
- supporting jacks in the absence of a tractor unit; wheel chocks
- automatic brake interlock on deployment of handrails(s)

Best practice options for fixed gantries:

Gaining access to raised platform

A means of access must be provided using steps at a safe angle (rather than a fixed ladder) and the steps should have a non-slip surface, preferably open mesh/mezzanine and be fitted with handrails.

The gantry platform should be fitted with handrails at least 1100mm with a mid-rail and toe board. All gaps in the handrail should be guarded when not in use. This guarding should not be non-tensioned chain or rope. The gantry should have adequate headroom to prevent people striking their heads against overhead obstructions. All equipment that an operator is expected to use, e.g. valves, hoses, pipes etc should be readily accessible.

Access from platform to tankers

The arrangement for access onto the tanker itself should be via height adjustable bridge/steps so that safe access is provided across to tankers of different heights. The bridge should be aligned to give access to the most suitable part of the tanker, directly onto the tanker walkway, close to the loading manway. The bridge requires handrails to the same standard as the platform.

An increased width of the bridge (long bridge) overcomes some of the difficulties associated with aligning the bridge with the road tankers hatch or walkway.

Handrails (gantry side) that provide fall protection

The tanker station gantry must provide adequate handrails to prevent falls from the top of the tanker. Handrails will normally be attached to the overhead structure. The handrails need to be provided wherever a person is likely to fall 2 metres or more. The maximum vertical spacing of the handrails up to a height of 1100mm above the tanker should not exceed 475mm. The handrails must be adjustable to prevent the maximum gap being exceeded where different tankers use the gantry.

Pneumatically operated side safety barriers

One design that minimises the gap with variable height tankers is based on extended safety barriers, fixed to a high point within the loading bay, which are pneumatically pressed onto the side of the tanker.



Alternatively, the required standard in top guarding can be achieved by raising the handrails provided on the road tanker. When the tanker is in position, sufficient clearance is required between the tanker and fixed steelwork structure to allow the handrails to be fully extended heightwise.

7.3 Safe Access as part of Road Tanker design

General Description

Road tankers can provide their own means of safe access.

Advantages

- safe access to the road tanker anywhere
- no need for dedicated tanker stations.
- British Standard for milk tankers already in existence
- cost of implementing on new build equipment/tankers is minimal.

Limitations

- reduction in the payload.
- increased maintenance requirement due to moving parts
- difficult to upgrade some existing vehicles
- not suitable for some existing loading stations
- high cost of upgrading existing vehicles

7.3.1 Road Tanker Designs

The Road Haulage Association, in conjunction with the HSE, have issued a guidance for tanker access, as built into general tanker design.

The enforcement standard requires:

1. Where the tanker is fitted with a walkway at around half barrel height, the walkway shall be at least 350mm wide with a non slip surface. The open side should be securely fenced to a height of at least 1100mm above the walkway by means of a suitable guardrail and mid-height protection. A grab rail should be fitted to the tank barrel.
2. Where the tanker is fitted with a walkway or working platform at or near the top of the tank, it shall be of adequate dimensions, in a single plane and with no tripping hazards. It should be at least 900mm wide if all round access is required or at least 600mm if one side working is specified and be made in a suitable non slip surface.
3. Where the tank is fitted with a walkway (as 2 above) there should be secure fencing on all sides of the platform except at the access ladder. The top of the fencing shall be at least 1100mm above the walkway/platform and it should consist of a suitable top rail and mid-height protection. The fencing should be capable of being erected and stowed from ground level without undue physical effort.

The wide variety of tank designs may mean that alternative tank top working configurations are possible which provide the same levels of protection as the above minimum standards. It is acceptable to deploy these where risk assessments clearly demonstrate that at least the same level of protection is afforded and where the following principles apply:

- the working platform is fully infilled so as to minimise slip and trip risks.
- all round protection is provided to the operator in the event of a fall.
- the hierarchy of control is applied to determine the most appropriate system.

The above is not applicable to ISO tankers.

Timescale for implementing design changes (over 3 years)

After extensive consultation between the Road Haulage Association's Tanker Group and the Health and Safety Executive, the following actions were agreed, to provide a common and consistent industry approach to tankers where top access will still be required:

- all new road tankers requiring platforms or walkways will be fitted as the above standard - effective immediately.
- tanker operators will ensure that all tanks that require platforms and walkways will be retrofitted as the enforcement standard by 31st March 2006 at the latest, where top access is required outside of a suitably equipped fixed gantry system
- tanker operators will ensure that 50% of their fleet will be retrofitted as above, or the need for tank top access eliminated, by October 2004.
- tanker operators will put in place a programme for implementing the work needed to achieve these deadlines. This will be documented in writing.

This, however, still requires the operator, to ensure that he has in place effective measures to prevent a person falling from height during the implementation period under Regulation 13 (1) of the Workplace Regulations.

7.3.2 Reference to British Standards

Essential Safety Requirements

Good practice requirements available from existing HSE guidance aimed at road tank manufacturers and combines the elements from *BS3441 – Specification for Tanks for the Transportation of Milk* that relate to the provision of adequate handrails.

Access onto Road Tanker

The access ladder from the ground must be of sound construction and positioned vertically or sloping inwards towards the top. The rungs should be of a diameter greater than 20mm and positioned at intervals not exceeding 300mm. Stiles should be at least 250mm apart and the clearance between the rungs and the tanker body should exceed 130mm. The construction materials should minimise the risk of slipping and include the provision of handrail(s). Access ladders can be fitted to the front, rear or side of the tanker. Side access ladders commonly utilise the crash rails as the lower steps.

Handrails on all sides (conforming to BS 3441)

- complies with all essential safety features.
- adopted by the Dairy Industry as a mandatory standard, leading to a marked reduction in the number of falls from road tankers.
- a limited number of road tankers of this design are operated within the industry.

The BS standard will shortly be revised to extend handrails up to the edge of the ladder on the fourth side.

Side Access Tankers (conforming to BS 3441)

- a ladder extends up the side or end of the tanker in line with the hatch. The design eliminates the need to gain top access, as the person is able to work from a position part way up the tank.
- whilst working from the side a waist safety harness is worn to ensure the person remains attached to the tank.
- the design incurs less cost and lower maintenance requirements than other solutions.

Accepted as safe means of access by enforcing authorities. The limiting factor is the range of tasks that can be completed from a restricted position part way up the side of the tank.

7.3.3 ISO Tanks

ISO Tanks (commonly used for import/ export)

- designed to facilitate containerised transportation of bulk tanks. Constructed outside the UK and not subject to any recognised design standards.
- safe access to the top of these tanks was not a design requirement. In many examples there is a complete absence of access provisions. Collapsible hand rails can suffer badly from corrosive sea conditions and if left raised, can contact tops or bridges or overhead power cables for locomotives. Side access ladders can be particularly vulnerable to damage.

ISO tankers should only be handled at facilities that are able to provide the required level of fall protection. It is not possible to specify gantries as the only safety option since conditions and use may vary between premises. Therefore the appropriate risk assessment needs to be made at every site which might indicate a safe alternative to gantries.

7.4 Fall Arrest Equipment

General Description

The use of this option is limited to circumstances where it can be demonstrated that there are no “reasonably practicable” alternatives. This type of equipment consists of a harness or belt attached to a lanyard constructed and installed in a manner that would help prevent a fall from height. The option attracts a range of statutory requirements that are detailed within the Personal Protective Equipment at Work Regulations.

Advantages

- selection of fall arrest type systems available that can be tailored to suit almost all operating environments
- typically lower cost
- offers a reduction in level of risk where the site’s risk assessments indicate a level of risk that fails to warrant more radical measures.
- provides a “quick fix” until a more permanent solution can be implemented

Limitations

- equipment needs to be used by trained operators e.g. trying to break a fall whilst attached to an inertial reel system may prevent its operation by slowing the rate of fall to a level below that which the inertia mechanism operates.
- requires additional statutory duties e.g. servicing, inspection and storage.
- more likely to create behavioural issues associated with its use.
- the fall arrest equipment may leave the person suspended in mid air.

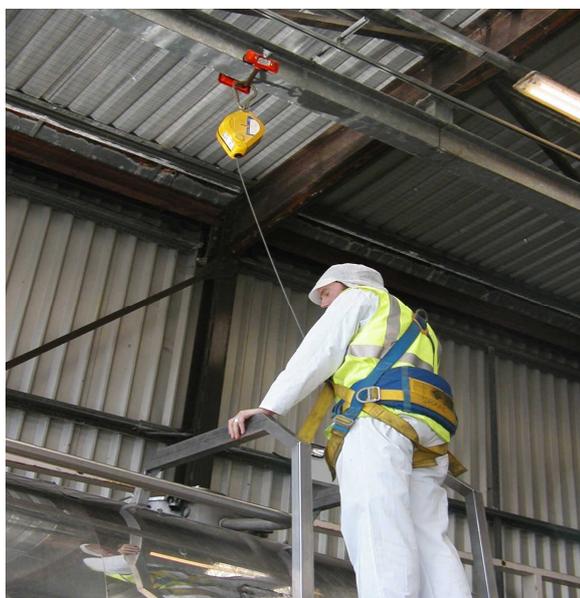
Essential Safety Requirements

7.4.1 Fall Arrest Equipment Supported by Overhead Structures

Overhead structures such as the canopy of a tanker station may offer a suitable attachment point for mounting a fall arrest system. Prior to fitting, it will be necessary to obtain confirmation that the supporting structure is capable of supporting the weight of the proposed system during normal operation and in the event of a shock-load following an incident.

These systems require a rail, track or cable to be secured to the overhead structure. The installation can accommodate situations where access is gained from high level gantries or platforms or from ground level. Systems can be designed for single person access or simultaneous access for more than one person. The selections of rails, cables or tracks each offer advantages and limitations that need to be discussed with a competent installer.

The individual is secured to the overhead structure by the use of a lanyard that has an integral shock absorber to prevent injury from the arresting forces. Where movement is limited to the horizontal plane e.g. direct access from a gantry at the same height, a lanyard of fixed length may be adequate. In situations where vertical movement is required e.g. access from ground level, an inertia reel needs to be added to the assembly. It should be remembered that inertia reel units result in the lanyard recoiling into its high level housing. A low level mounting or convenient method of retrieving the lanyard from high level housing will be required. The person on top of the road tanker will be required to wear a full harness. A properly fitted harness can be comfortably worn for prolonged periods.



Advantages/Disadvantages

This must be considered as the best Fall Arrest system available. However, many facilities may not have sufficient headroom to install or have structures of adequate strength to support such a system.

7.4.2 Fall Arrest Systems Where No Overhead Structure Exists

The absence of an overhead structure does not necessarily eliminate the use of a fall arrest solution, albeit that the installation costs will increase substantially. Supporting pillars can be placed into the ground to support the overhead assembly. This type of arrangement requires particular attention be given to the positioning of road tankers. Where the number of road tankers is limited, attaching the fall arrest equipment to the road tanker is a more cost effective solution.

Where no overhead structures exist, their fitment is likely to be too costly to be considered as a potential solution.

7.4.3 Fall Arrest Equipment Attached to the Road Tanker

This type of equipment can be used to assist access from ground level or tanker stations that fail to offer adequate protection from falls. Although the equipment is not widely used within the Vegetable Oil Industry, it does offer the benefit that the road tanker does not need to be located directly under a purpose built fall arrest system. Tensioned cables and a free running Lanyard is secured to the road tanker. Connection via a waist belt with a clip-on safety hook that allows 180° rotation.

Unlike conventional handrails, the system is unlikely to be impaired when operating from tanker stations and gantries that prevent the erection of the road tanker handrails.

This can only be considered a solution if the Road Tanker has the free running lanyard equipment incorporated in its design.

8. Selection Of Top Filling Equipment

General Description

Top filling is normally achieved by the use of fixed loading arms / moveable pipework or flexible hoses. Careful selection of equipment will help minimise the risk of operators losing their balance while handling the filling head on top of the road tanker.

Fixed Loading Arms / Moveable Pipework

These devices are the best technique for top filling. The equipment consists of permanent pipework directly connected to the loading facility. The loading arms can easily be raised and lowered into position by means of pneumatic or counter balanced weight control. The mechanism can incorporate operating valves and a sensor to detect high level in the tanker.

Flexible Hoses

Flexible hoses are the most common means of top filling road tankers. In most installations the type of hoses used increase the risk of falling while handling by being difficult to manoeuvre. Potential solutions already in use within the industry include the use of lightweight hoses and the introduction of counterbalanced equipment.

9. Safe System Of Work

General Description

Providing road tankers and facilities to a standard that enables safe access is critically important, but on its own will not prevent accidents. Arrangements must be established to ensure that “safe” equipment is used, and used in a safe manner.

The arrangements will normally take the form of written safe systems of work. The safe system of work should describe the safe use of equipment and the operating procedures needed to control risks that cannot be controlled by hardware solutions alone. To be effective, adequate training must support safe systems of work.

Maintenance

All equipment – fixed and moveable, should be regularly maintained according to the Ministry of Transport Regulations.

Hazards requiring the development of operation procedures typically include;

<u>Hazard</u>	<u>Potential system of work</u>
• Unauthorised access/access in an unauthorised location	- Restricted access arrangements.
• Out of spec/mismatched tankers	- Reject unsuitable Road Tankers that cannot be handled / loaded safely.
• Unplanned movement of road tanker	- Securing of vehicle keys until the operation has been completed. - Disconnection of the vehicle’s airline, which will automatically apply the brakes. - Brake interlock when handrails deployed
• Catastrophic failure of tanker landing legs	- Leaving tractor unit attached or positioning of a safety jack(s) under the 5 th wheel
• Additional hazards created by foul weather	- Brushing/de-icing/prevention of access. Availability of a PPE/ fall arrest if access is essential.
• Overhead obstructions that cannot be engineered out	- Use of hard hats or bump caps. - Clearly labelled and hazard marked overhead obstructions.
• Additional risks created by defective equipment	- Defect reporting procedures. -
• Poor housekeeping techniques	- Ensure strict procedures are adhered to. -
• Potential risks with slips/falls	- Ensure correct safety equipment is in use including correct footwear

10. Recommendations

The hierarchy of control measures recommended by the working group has been guided by advice from the HSE, and best practice safety standards from within the edible oil industry. The main points are:-

1. Eliminate need for top access

For loading operations, pumping via the tanker base valves is preferred, which eliminates the need for top access. However, not all top operations are avoidable, particularly the current practice of top access before loading starts to carry out vehicle visual inspection and sampling. Inspection assures cleanliness as guided by European food safety regulations.

Top access to vehicles before discharging can be minimised, given more co-operation with customers for sampling and seal removal.

2. Install fixed gantries

If bottom loading is not reasonably practical, then gantries or safe access platforms should be provided at the loading points where loading takes place several times a week. Personnel should be protected from falling by secure fencing.

It is not foreseen that fixed gantry design can be standardised over the current range of vehicle designs.

3. Modify road tanker

For areas on site where loading or offloading takes place more infrequently, then repeated fixed gantries are not feasible. In such cases the alternative provision of secure fencing on the tanker should be possible.

SCOPA supports guidance from the Road Haulage Association/HSE working group in proposed minimum design standards for new tankers, and adaptations to tankers currently in use. The proposal is a consistent industry approach to tankers where top access is required:

- all new road tankers requiring platforms or walkways will be fitted a prescribed standard - effective immediately
- tanker operators will ensure that all tanks that require platforms and walkways will be retrofitted by 31st March 2006 at the latest, where top access is required outside of a suitably equipped fixed gantry system
- tanker operators will ensure that 50% of their fleet will be retrofitted as above, or the need for tank top access eliminated, by October 2004

3. Modify road tanker (cont...)

Timescale

Within 3 years, specific risks of falling that are determined through risk assessment can be dealt with by modifications to the vehicle handrails/walkways or if this is not possible, use of fall arrest equipment. Any vehicles not able to comply with suggested modernisation should be phased out within this period i.e. by 2006.

The above should be regulated by SCOPA led audits.

4. Fall arrest equipment

The use of fall prevention and fall arrest PPE systems should only be considered if secure fencing is not reasonably practical.

Details of Applicable Legislation:-

Statutory Responsibilities

The Health & Safety at Work etc Act 1974 requires all employers to provide safe access to places of work. The top of a road tanker comes within the definition of a place of work, therefore safe access must be provided. The requirement is that “so far as is reasonably practicable as regards any place of work under the employers control, the maintenance of it in a condition that is safe and without risks to health and the provision of means of access to and egress from it are safe and without such risks”.

The Management of Health and Safety at Work Regulations 1992 requires employers to complete risk assessments and record the significant risks to which their employees and other persons e.g. contract drivers, may be exposed. The employer will then need to identify where additional control measures should be provided.

The Workplace (Health, Safety and Welfare) Regulations 1992 identifies a range of general measures that should be provided to prevent people falling from a height of 2 metres or more. Control measures applicable to road tankers include:

- Eliminating the need to access the top of vehicles as far as possible. Where it is unavoidable, effective measures should be taken to prevent falls. If varying designs of vehicles are loaded the guarding needs to be adjustable.
- Secure guarding must be provided to a standard that removes the risk of people falling over, under or through gaps. The use of untensioned chains, ropes and other non rigid materials are not acceptable and guarding should be to a height of 1100mm. Whilst not explicitly stated in these regulations, a benchmark taken from the construction regulations would be to ensure gaps do not exceed 470mm.
- Whilst in use unguarded openings used for access should be minimised as far as possible and securely guarded immediately after.
- Where guarding cannot be provided, other effective measures must be taken to prevent falls. Examples include restricting access, safe systems of work and the use of fall arrest equipment.

The Lifting Operations and Lifting Equipment Regulations 1998 (known as LOLER)

The Provisions and Use of Work Equipment Regulations 1998 (known as PUWER 98) requires that equipment provided for use at work, including machinery, is safe.

Good Practice Guidance

HS (G) 136 Workplace Transport provides general information on this subject. The content has a bias towards the petroleum industry and more specifically road tanker

top access at petrol filling stations. It advises to limit access, position access ladders to minimise the amount of walking on top of the tanker, use non-slip materials on walkways and provide handrails (with mid-rail). The guidance recognises that these features are not always fitted and recommends consideration is given to retro-fitting.

HSE Guidance Note GS26 (Nov1983) was issued for those who design ladders and walkways for road tankers. The content reflects good practice during the 1970's; however it does not reflect current standards and recent legislation.

BS3441 (1995) Specification for Tanks for the Transportation of Milk and Milk Products. The standard was developed and adopted by the milk industry to specify the requirements to permit safe access.