Federation of Piling Specialists

Best Practice Guidance

Safe Preparation and Transportation of Drilling Tools

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1.0 Introduction

Modern drilling rigs are able to undertake a broad range of piling techniques using a vast array of tools and attachments. Whether the rigs and associated equipment are supplied to a job site from a contractors own resource or whether the equipment is supplied by a third party manufacturer/hirer there are certain basic considerations which must be given by those responsible for planning, organising and supervising the preparation and transportation of individual items of tooling.

This document specifically focuses on the return of tooling from a job site at the end of a period of use. This is of particular concern for a number of reasons:

a) Tooling is more likely to be worn or damaged at the end of a period of use – this may have a significant effect on how the equipment is to be prepared and transported back to the supplier's yard.
b) Personnel on the job site and in the haulage industry may be less familiar with preparing and lashing these specialist items than the supplier's own personnel.
c) Tooling is more likely to be dirty and contaminated at the end of a period of use.
d) Poor planning and/or execution of the process could have serious H&S implications not only for those employees involved in loading/off-loading the equipment at each end of the journey but also for members of the general public on our roads and motorways.

The aim of this document is to provide clear and concise "best practise" guidance for any personnel involved in the process of returning drilling tools from a job site.

Whilst these guidance notes have been compiled with the expectation that potential readers will have varied levels of knowledge and experience it is generally assumed that at each stage those involved will be suitably qualified/experienced for the given task in hand. This document is not intended to provide a detailed summary of each parties legal obligations nor is it setting out to specifically identify an individuals, or a company's, responsibility to comply with specific legislation such as that detailed under LOLER/PUWER or other more general H&SE guidelines.

2.0 Responsibilities

The supplier is obliged to supply tools which are fit for purpose and in good, clean serviceable condition. If this is not the case the supplier must be advised in writing within 24-hours of equipment delivery to the job site at which point the parties can agree an appropriate course of action.

“Fit for purpose” tooling means that the tool is in good working order, ready to perform its duties. It does not mean that the supplier is guaranteeing the tool will be the optimum choice for any given application or set of ground conditions.

The job site management must ensure that drilling tools are handled safely at all times and used/maintained in the manner in which they were intended. This should include routine maintenance by welding, hard facing and/or the replacement of consumable wear parts, as required. Failure to maintain the tool can lead to premature failure or a potential risk of injury to personnel.

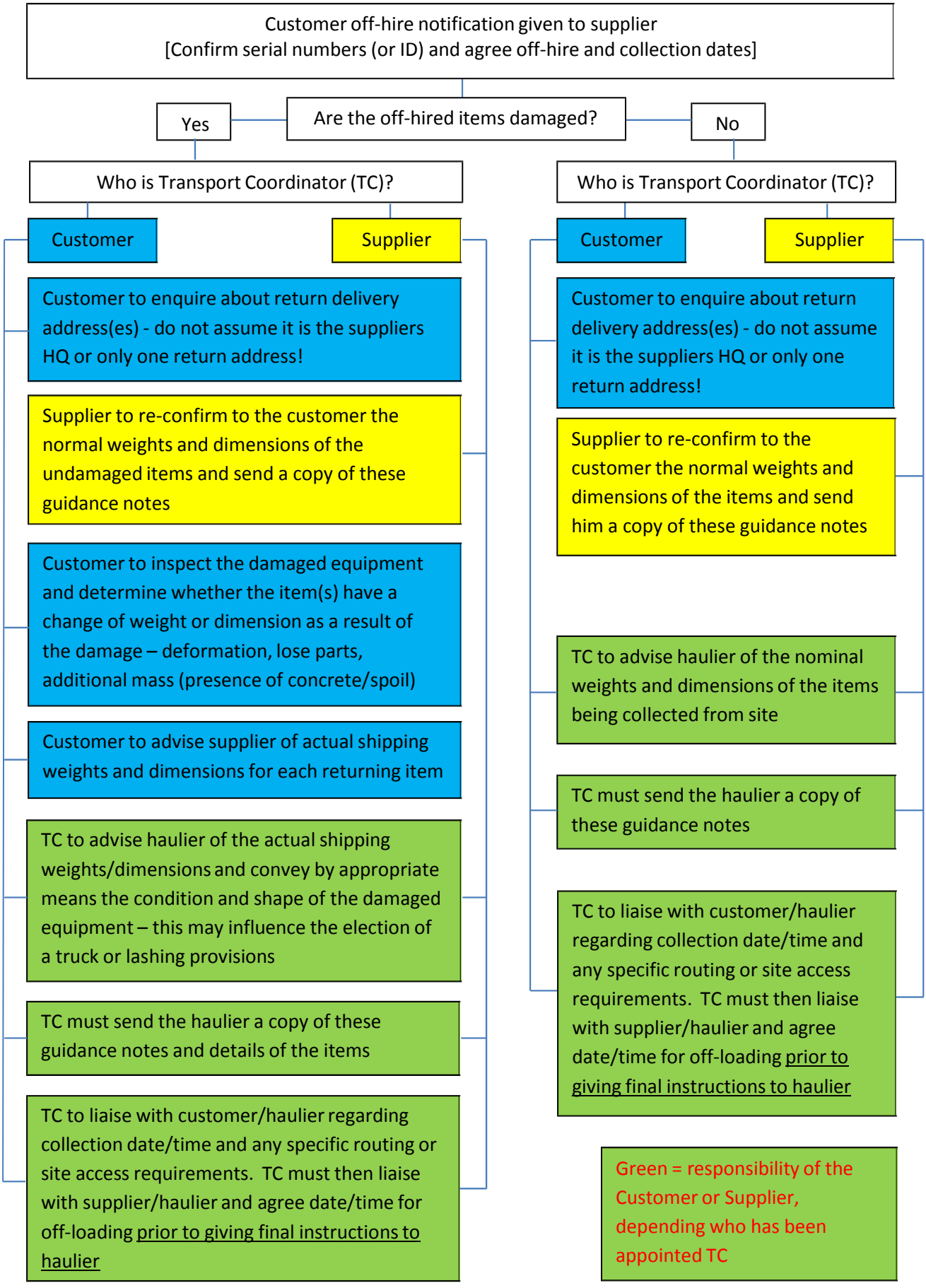
Tools are expected to be returned to the supplier’s yard generally in the same condition as they were supplied - clean and ready for re-use. Where this is not the case, the supplier will be within his rights to raise a charge for any subsequent cleaning or repair/replacement work which may be required.

The job site is obliged to inform the supplier, with reasonable notice, when an item of tooling is no longer required on site. At that time the supplier must be clearly informed about which tools (preferably by serial number) are to be returned and when. The parties must agree who is to be responsible for organising the return transportation (a Transport Coordinator must be appointed). This process should apply whether the tool is in need of repair or simply no longer required. If the items to be returned have been damaged it is the responsibility of the job site management to fully inform the supplier about the nature and scale of that damage.

Tooling damage may not only have an impact on the suppliers follow-on projects but it will also have a direct bearing on; the preparation of the equipment for transport; the selection of appropriate transport, and on the preparations which must be made for off-loading/repairing at the return address.

Should the job site encounter hazardous or contaminated soils utilising the tools supplied they are obliged to inform the supplier about that hazard and provide further details about the risk to the environment and to personnel. Should this result in the supplier having to clean or process the returned materials in a special manner additional charges may well apply.

3.0 Return Procedure



4.0 Tooling Return - considerations by Tool Type

4.1 Kelly Bars

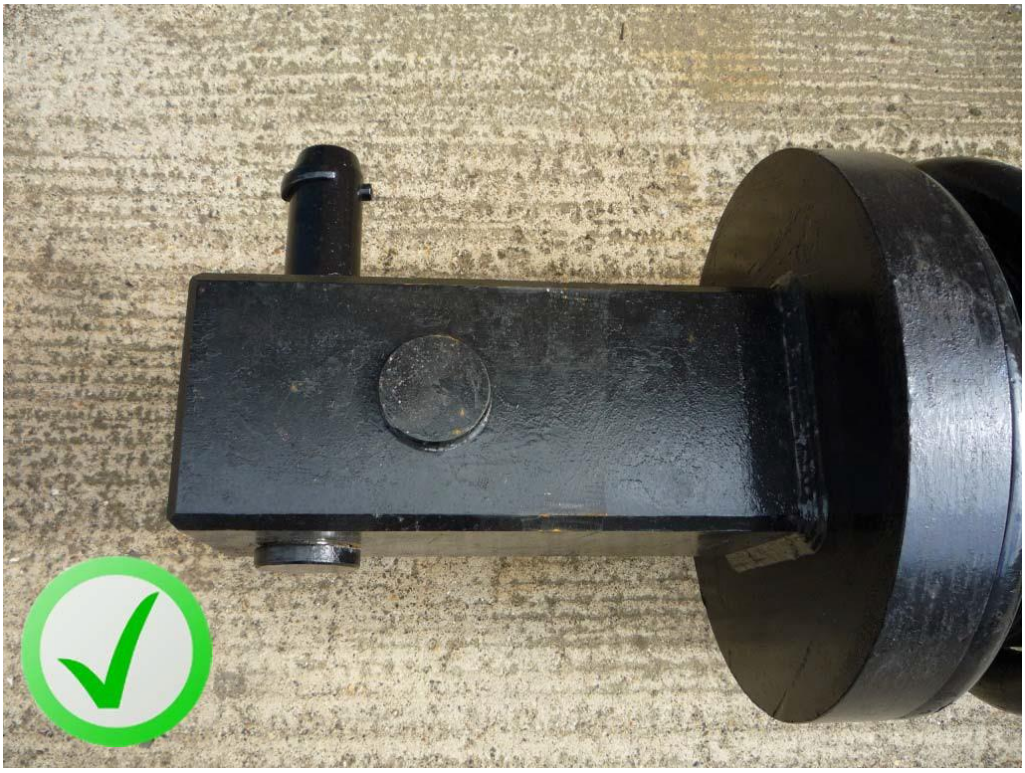
In general the Kelly bar should be loaded in the fully retracted state with the "stub" end (the end which connects to the drilling tool) facing the headboard of the truck. This ensures the bar cannot extend during transportation for some reason.

If the bar has become damaged in some way, such that it is not possible to fully retract the bar, adequate provisions must be made by the TC for any change of actual transport dimensions. This may require a larger wagon with extendable bed, for example, but in extreme cases some temporary repairs/modifications may be required on site prior to loading. This MUST be discussed and agreed with the supplier/owner of the bar prior to work commencing.

A damaged Kelly bar may also have a change in its centre of gravity and this should be considered when loading and off-loading with the lift plan being revised accordingly.

When loading on the truck care should be taken to adequately support the length of the bar (so as to avoid bending the bar) and packing must be used so as to prevent the bar from rolling on the truck bed during transportation.

Where Kelly stub end pins are fitted to the bar they must be checked for security prior to loading. If in doubt, the pins should be removed for transportation and given to the truck driver for safe storage.



The Kelly swivel (top end of the bar) must also be checked for security prior to loading.

In general, the Kelly bar should travel with the swivel fitted but if it has been removed for some reason this can create a potentially dangerous situation during transportation – in many cases the swivel also acts as a retainer for other heavy components so if it has been removed the other components may fall from the truck during transport. If the swivel is not present please discuss the implications of this with your supplier prior to organising transport.

[Example to the right here shows keeper plate almost falling out of the Kelly bar as a result of a customer removing the swivel prior to transit!]

In the absence of a swivel a temporary locking bar can be fitted as shown to the left here. This arrangement prevents the bar from extending during transportation or handling.

4.2 Casing Drive Adapters

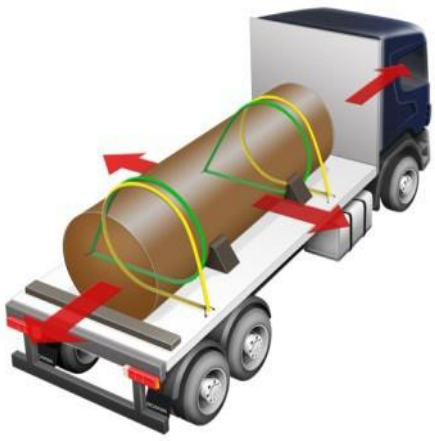
Casing Drive Adapters typically contain locking pins. These locking pins must be checked for security prior to loading on a truck. If they are loose, they should be removed and handed to the truck driver for safe storage and a comment about that added to the collection/delivery note.

The Drive Adapter must be clean and free from any site debris prior to loading. Failure to clean this item could result in:

a) Heavier handling and transport weight than planned
b) Shifting load during loading
c) Risk of debris falling on to personnel during loading and off-loading
d) Risk to the general public during transportation

These items may be transported loaded standing upright or lying on their sides but the primary consideration is one of stability when choosing which is most appropriate.

Where they are loaded on their sides, and they are fully circular, they are likely to roll around on the truck bed so they must be chocked in such a way as to prevent them from moving during transport.



Chocking of circular items is very important and if this is not carried out correctly by the haulier the load may shift or break free from its lashings during transportation. Chocking is generally best achieved using shaped wedge timbers or two square timbers set parallel to each other on the truck bed.

Where Drive Adapters are loaded on their end it is important to pack the contact area under the item with timber so as to create an even load distribution. Make sure to use sufficiently large sections of timber and of sufficient length/strength when doing this, creating a level, stable and sufficiently wide temporary platform

Packing and lashing of this item should be discussed and agreed between the TC and the haulier in advance of transport being ordered. If any special provisions are required these should be agreed with site in advance.

4.3 Continuous Flight Augers [Pictures required]

CFA Augers are circular and relatively long, slender items. Lengths are connected together using different coupling designs but irrespective of the particular design each length of auger must be checked at each end to ensure the couplings and connecting pins/bolts are secure prior to loading and transportation. If they are loose, they should be removed and handed to the truck driver for safe storage and a comment about that added to the collection/delivery note.

If an auger length has become damaged in some way the user must report that to the supplier and adequate provisions must be made by the TC for any change of actual transport dimensions. This may require an additional or larger truck to be sourced, for example.

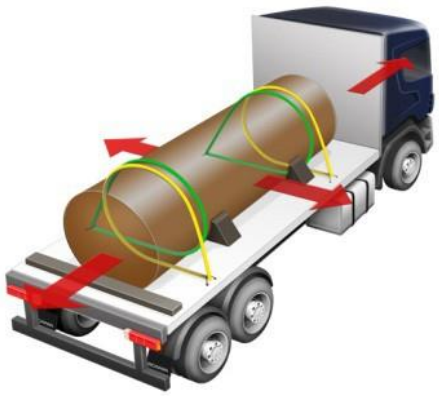
A damaged auger may also have a change in its centre of gravity and this should be considered when loading and off-loading with the lift plan being revised accordingly.

The augers must be clean and free from any site debris prior to loading. Failure to clean this item could result in:

a) Heavier handling and transport weight than planned
b) Shifting load during loading
c) Risk of debris falling on to personnel during loading and off-loading
d) Risk to the general public during transportation

These items are generally circular in construction and must be loaded lying on their side. Since this means they are likely to roll around on the truck bed they must be chocked in such a way as to prevent them from moving during transport.

Chocking of circular items is very important and if this is not carried out correctly by the haulier the load may shift or break free from its lashings during transportation. Chocking is generally best achieved using shaped wedge timbers or two square timbers set parallel to each other on the truck bed.



CF Augers do not have a high bending strength so they must be supported along their entire length during transport. A significant overhang or gap between supports may lead to a permanent bend in the auger and any repair/replacement associated with this outcome will result in a cost to the job site. [Picture required]

Packing and lashing of this item should be discussed and agreed between the TC and the haulier in advance of transport being ordered. If any special provisions are required these should be agreed with site in advance.

4.4 Drilling Buckets & Core Barrels

There are different types and designs of buckets but in general these items are circular in design with varying diameters and lengths. They typically contain swinging or hinged doors and may have automatic or manual release mechanisms. With more moving parts they are perhaps more susceptible to being damaged in use than some other tools and this may have a more significant effect on loading and transport planning.

Buckets must be clean and free from any site debris prior to loading. Failure to clean them could result in:

a) Significantly heavier handling and transport weight than planned
b) Shifting load during loading
c) Risk of debris falling on to personnel during loading and off-loading
d) Risk to the general public during transportation

[Example of an Ø1800mm digging bucket returned from hire with a damaged release mechanism. It was full of sand but the supplier had not been advised of the damage or of the huge additional weight increase prior to collection]

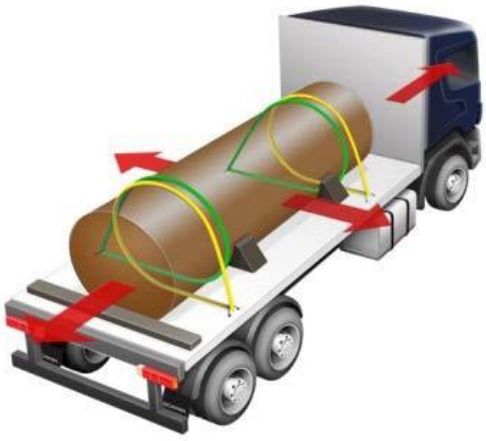
Prior to loading the site must check that all mechanisms and potentially loose wear parts are secure. Failure to do so may result in a dangerous occurrence during loading/off-loading or perhaps result in an item falling from the truck during transit. If they are loose, they should be removed and handed to the truck driver for safe storage and a comment about that added to the collection/delivery note.

Buckets are generally transported lying on their sides but on occasion some may be loaded upright. The primary consideration is one of stability when choosing which is most appropriate.

Where buckets are loaded on their sides and they have a flat on their circumference it is recommended that they be loaded so that the flat is in full contact with the truck bed. This simplifies loading and lashing.

Where buckets are loaded on their sides, and they are fully circular, they are likely to roll around on the truck bed so they must be chocked in such a way as to prevent them from moving during transport.

Chocking of circular items is very important and if this is not carried out correctly by the haulier the load may shift or break free from its lashings during transportation. Chocking is generally best achieved using shaped wedge timbers or two square timbers set parallel to each other on the truck bed.



Where buckets are loaded upright (sitting on their cutting face in effect) it is important to pack the contact area under the bucket with timber so as to create an even load distribution. Buckets usually have raised blades or teeth on their cutting face so will not sit square on the truck bed. The high spots will generate high contact stresses and this may cause damage to the truck bed during transport if packing is not used to level out and spread the load. Make sure to use sufficiently large sections of timber and of sufficient length/strength when doing this, creating a level, stable and sufficiently wide temporary platform

Packing and lashing of this item should be discussed and agreed between the TC and the haulier in advance of transport being ordered. If any special provisions are required these should be agreed with site in advance.

4.5 Augers

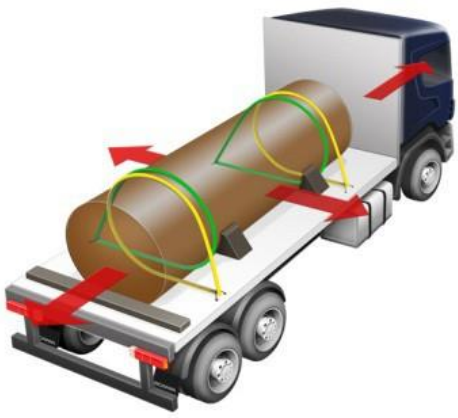
There are different types and designs of augers but in general these items are circular in design with varying diameters and lengths. Prior to loading the site must check that all wear parts are secure. If they are loose, they should be removed and handed to the truck driver for safe storage and a comment about that added to the collection/delivery note. Failure to do so may result in a dangerous occurrence during loading/off-loading or an item falling from the truck during transit.

Augers must be clean and free from any site debris prior to loading. Failure to clean them could result in:

a) Significantly heavier handling and transport weight than planned
b) Shifting load during loading
c) Risk of debris falling on to personnel during loading and off-loading
d) Risk to the general public during transportation

Augers will be transported loaded lying on their sides and being of a circular construction they are likely to roll around on the truck bed so they must be chocked in such a way as to prevent them from moving during transport.

Chocking of circular items is very important and if this is not carried out correctly by the haulier the load may shift or break free from its lashings during transportation. Chocking is generally best achieved using shaped wedge timbers or two square timbers set parallel to each other on the truck bed.



Packing and lashing of this item should be discussed and agreed between the TC and the haulier in advance of transport being ordered. If any special provisions are required these should be agreed with site in advance.

4.6 Segmental Casings/Single Wall Casings

These twin wall casings can be supplied in a wide range of standard diameters and in various lengths typically from 1.0m up to 6.0m, each with a known weight. They typically contain a number of casing screws which are threaded radially into on end of the casing. Some lengths of casing may also contain cutting teeth and these can be welded or removable.

Prior to loading, the site must check that all potentially loose casing screws and other wear parts are secure. Failure to do so may result in a dangerous occurrence during loading/off-loading or perhaps result in an item falling from the truck during transit. If they are loose, they should be removed and handed to the truck driver for safe storage and a comment about that added to the collection/delivery note.

Casings must be clean and free from any site debris prior to loading. Failure to clean them could result in:

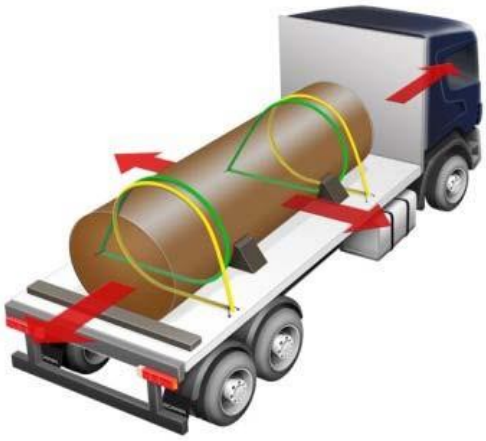
a) Heavier handling and transport weight than planned
b) Shifting load during loading
c) Risk of debris falling on to personnel during loading and off-loading
d) Risk to the general public during transportation

[Example of how not to return drill casings – these 880mm casings were not cleaned prior to loading out of a job site and presented a very clear hazard to both the personnel that were off-loading the equipment and to the general public whilst in transit]

Casings may be transported loaded on-end or lying on their sides but the primary consideration is one of stability when choosing which is most appropriate.

Where casings are loaded on their sides they are likely to roll around on the truck bed so they must be chocked in such a way as to prevent them from moving during transport.

Chocking of circular items is very important and if this is not carried out correctly by the haulier the load may shift or break free from its lashings during transportation. Chocking is generally best achieved using shaped wedge timbers or two square timbers set parallel to each other on the truck bed.



Where shorter casings are loaded on their end it is important to determine that they will remain stable during transit. It is good practise to load the casings onto packing timbers (in order to spread the load and protect the truck bed but also to assist in their off-loading at the return address). Make sure to use sufficiently large sections of timber and of sufficient length/strength when doing this, creating a level, stable and sufficiently wide temporary platform

Packing and lashing of this item should be discussed and agreed between the TC and the haulier in advance of transport being ordered. If any special provisions are required these should be agreed with site in advance.

Consideration should be given as to the stacking of all casings for the purposes of loading and unloading and the risks associated with working at height as well as the actual slinging of the load.

4.7 In all instances

- Wherever possible the load should be pre slung in order to avoid working at height. Only suitable lifting accessories should be utilised.
- Where possible, all item weights should be clearly identified.
- Suitable edge protection should be fitted by the haulier.
- Where appropriate all vehicles must comply with FORS/CLOCS registration.