Best Practice Transport of Tubulars
1 General

1.1 Purpose
The purpose of this document is to describe the recommended practice for safe transportation and handling of tubular cargo on offshore service vessels. Important interface issues in relation to bases and installations are included.

According to governing regulations, it is the responsibility of the captain to make sure that the cargo is properly secured before the departure. This document does not in any way or manner exempt the captain from this responsibility, but is intended to serve as the recommended practice for handling of tubular cargo on vessels in connection with cargo handling at bases and offshore as well as during transport.

Appendix A includes an overview matrix which highlights activities, hazards as well as risk-reducing measures in connection with transport of tubulars.

1.2 Definitions, images and references

Tubular cargo: Round objects which are shipped not in separate cargo carriers but using slings to bundle one or more such objects together in a bundle.

Marine risers
**Conductors:** Dimension 26” to 32”

**Casing:** Casing dimensions range from 2 7/8” to 26”
Drill pipe

Slip joint: "Telescope" which absorbs vertical drilling riser movements on a floating rig

Drill collar: Collars used to increase the weight of the drill bit during drilling. Has the same outside diameter across the entire length
Tubing

Tubulars for pipelaying vessel (transport pipeline)

ASFA: Automatic Sea Fastening Arrangement
Norsok R-003

NWEA Guidelines

Pup joint: Short casing / tubing joints used as "space out" for connecting pipelines sections of a pre-determined length.

Centralizer: Device fitted on the outside of the casing / liner to align it in the centre of the bore hole during cementing.

2 Cargo requirements

- The slinging must be in accordance with NORSOK R-003 Section 6.1.7. and be secured with wire clamps
- Units shorter than 6 metres must be transported in a cargo carrier
- Slinging of tubular cargo must ensure the bundles remain stable.
- *Slinging of an uneven number of tubulars should normally be used for all tubular cargo in accordance with the company's lift table (Appendix B):
  - Dim. 14"-30" Normally sling 1 tubular per bundle.
  - Dim. 2 3/8"-13 3/8" Sling an uneven number.
- As regards 9 5/8"-13 3/8” casings fitted with centraliser, consider having only 1 tubular in each bundle as it may be difficult to split them on the pipe deck
- The slinger must take into consideration the WLL of the slings and the weight of each tubular when slinging the bundles.
- Certified lifting points fitted on the tubulars shall be used during loading of large and heavy dimensions if they cannot be strapped in a prudent manner or handled in certified cargo carriers
- Inspect for loose/damaged protectors during all phases before lifting the cargo

*If all involved parties evaluate the total risk using even numbers in bundles to be less than using uneven number for both lifting operation and vessel transport, even numbers can be used.

3 Preparations before loading at base
• The vessel must be informed of the tubular cargo well before loading; *dimension, weight, length, quantity*.
• Dedicate the most suitable deck area based on destination, which crane will be used and weather reports. And if relevant, how many layers may be loaded.
• Hull loads and reduced stability in case tubulars become filled with water must be taken into consideration upon assignment of area.
• Position hawser:
  *Three hawser are recommended across the deck for each joint, one approx. in the middle, and one 1-2 m from each of the ends.*
• Position chain:
  *Two chains are recommended below the first layer for each joint, about 1/3 and 1/4 of the distance from each end. It may not be necessary to use the chain during the loading. But if the offloading operation must be interrupted before all cargo has been unloaded, the chains may be used to secure the remaining cargo.*
• Prepare pipe supports. The vessel will normally have pipe supports approx. 1/3 in from the cargo rail on each side.
• Prepare Automatic Sea Fastening Arrangement if necessary on vessels equipped with this.
• Pay special attention during loading on steel decks on anchor handling vessels. The vessel crew must position a sufficient amount of friction material (hawser) before the loading starts. Chains must also be used.
• A sufficiently large free zone must be established fore and aft of the dedicated cargo area. The area must be minimum 1 m.

### 4 Loading at base

• A representative from the vessel, preferably an officer responsible for loading, must monitor and supervise during the loading operation.
• It is important to ensure bundles are stowed as close together as possible to avoid the risk of shifting cargo during the voyage.
• If several layers are to be loaded, consider whether hawser should be position between each layer.
• When loading large dimensions with one tubular in each bundle, evaluate whether to fit wedges below each tubular joint to avoid the risk of shifting cargo during transportation or offloading.
• If wedges are used, these should be nailed to a wood deck if possible to reduce the risk of shifting.
• Different dimensions should not be loaded on top of each other. Large dimensions must never be loaded on top of smaller dimensions.
• When stacking cargo, take into consideration the strength of the deck, as well as the working height for seamen. Two metres is normally the maximum stacking height.
Vessels must always be loaded to facilitate easy securing of remaining cargo on board in case of interrupted offloading offshore.

If possible, tanks and other skid-type load carriers should not be positioned just fore or aft of tubular cargo due to the risk of snagging.

Slings on bundles must be extended and laid across the tubulars to avoid becoming wedged between the bundles.

Determine the appropriate placement in relation to openings and escape routes in cargo rails, etc.

Cargo carriers shall not be used as the only barrier to secure tubular cargo on vessel decks.

The risk of shifting cargo is normally highest during the voyage.

In the event of marginal weather conditions, the risk of shifting tubular cargo must be taken into account when selecting the time of departure, route and speed.

Conduct an internal Pre-Job Talk on the vessel to assess / clarify the following as a minimum:

- Communications
- Positioning of the vessel
- Distribution of work / roles between the seamen on deck when two pendants / hooks are used
- Operation-specific issues such as the weather, type of tubulars, location, any securing arrangements

Conduct a Pre-Job Talk between the vessel and the crane operator to clarify the following as a minimum:

- Communications
- How many bundles for each lift (max. 2 bundles)
- Any use of tag lines during offloading to the installation
- Positioning of the vessel as regards vessel movements, reach and line of sight from the crane
- Operation-specific issues, including risk of snagging.

Pay special attention during removal of any lashings used during the voyage out to the field.
• It is important to use correct footwear (protective footwear covering the ankles) if anyone has to walk on top of tubular cargo.
• Focus on correct dogging. Max. 2 eyes in each hook
• The deck crew, hook and cargo on the vessel deck must be within line of sight of the crane operator
• Good radio discipline is important – “Talk where the hook is”
• Avoid the use of tag lines if possible. If tag lines must be used, fasten and prepare these before dogging of the individual lifts
• The risk of snagging on the vessel deck and cargo rails, as well as in potential blind zones, must be taken into account during positioning of the vessel

8 Loading to vessel at installation

In addition to issues addressed under Section 7; Offloading at installation, the following issues are important during loading onto vessels at the installation:
• Vessels must be informed of the type, quantity and weight to be returned well before loading starts
• The vessel crew must prepare the necessary hawsers as well as chains and pipe supports
• All tubular cargo to be returned to a vessel should be washed first to avoid slippery tubulars on the vessel deck
• It is important to use correct footwear (protective footwear covering the ankles) if anyone has to walk on top of tubular cargo.
• Tubulars shorter than 6 metres must be shipped in baskets
• If possible, avoid tubular cargo where the crew of the vessel must unhook / hook lifting yokes
• Tag lines should not be used during loading of return cargo onto vessels
• The crew of the vessel must never touch lifts of tubulars or walk underneath such lifts before the lift has been landed properly
• Slings on bundles must be extended and laid across the tubulars to avoid becoming wedged between the bundles.
• During loading of return cargo, pay special attention to rolling cargo. In connection with large dimensions and if the vessel is rolling, any vessel without ASFA or equivalent must use wedges to secure large dimension cargo before unhooking it. It may be useful to have the vessel list somewhat towards the side where the first lifts will be landed

9 Interrupted offloading / loading at installation
• In the event of interrupted offloading or loading at the installation, the vessel must be able to and be given enough time to secure the remaining cargo in a proper manner

10 Offloading at base

• The deck crew must be careful during removal of sea lashings upon arrival at the base
• If other cargo is placed adjacent to tubular cargo upon arrival at the base, pay special attention during offloading of this cargo.

11 Loading of tubulars onto pipelaying vessels

Loading of tubulars for pipeline installation projects are normally handled by the pipelaying contractor chartering and employing the vessel, and not by the technical developer.
• Lifting beams are normally used during offloading of this type of tubulars, and they are lifted by inserting each end of the tubulars to be lifted into the lifting equipment
• During loading of large quantities of tubulars onto pipelaying vessels, take into consideration that the seamen need a safe workplace as well as the maximum total cargo that the vessel can hold. In the event of large heights, start loading from the middle to avoid work towards the outer perimeter of the cargo deck (risk of falling overboard?)
• Hull loads and reduced stability resulting from weight of tubulars, including water inside and between them, must be included in the stability calculations.
• The Monsvik method for loading of tubulars prevents very large open spaces between the pipeline bays. The distance down to the deck with 4 or 5 tubulars stacked on top of each other may be several metres. A fall may prove fatal.

12 Appendices

• Appendix A: Description of activities and risk-reducing measures for safe transport of tubulars
• Appendix B: Company-specific lift/sling table for tubular cargo