Safety in the modern offshore support vessel
Safety in the modern offshore support vessel

The Challenge

A safe, stable and comfortable platform for multi-functional vessels providing support to the offshore oil and gas industry

- Loading and discharging cargo in the offshore environment
- Anchor handling and towing large Mobile Offshore Drilling Units (MODU’s)
- Minimising noise and motion to combat crew fatigue
- A comfortable, relaxing off duty environment
Loading and discharging cargo in the offshore environment

• Cargo work offshore requires the vessel to be manoeuvred close to the offshore installation in a seaway and being held there in a manner that is sympathetic to the wind, sea and swell conditions for the crew working on deck and the crane driver on the offshore installation.

• All new tonnage in the Farstad Fleet is fitted with Dynamic Positioning Systems which allow the ships to be held in position using satellite positioning systems or ‘Radius’ relative position reference systems. This provides the ship the ability to hold position with minimum excursion and the crane driver the ship is where it was for the last load not 10 metres further away or 15 metres further forward etc. thus increasing the efficiency of the cargo operation.

• The officer on watch can effectively monitor the whole operation without having to concentrate on manually manoeuvring the vessel under the crane.
Manoeuvring Position – the old way!
Manoeuvring Today
Manoeuvring Today
Manoeuvring a modern supply vessel
Aft console arrangement
Forward console arrangement
Securing Deck Cargo

- Deck cargo has traditionally been secured using tugger winches, chains and turnbuckles etc.
- This involves considerable manual handling and leads to pinching type injuries.
- Wires and other lashing equipment gets damaged or weakened leading to failures with sometimes severe consequences
- Securing systems are being developed to minimise personnel involvement
Traditional method of securing deck cargo
Automated Sea Fastening Arrangement

Chain driven cargo stops
Anchor Handling and Towing Operations

• These operations have traditionally involved a large amount of manual handling
• Crew can be exposed to heavy equipment under load
• The size of equipment in use as deeper water operations being undertaken in water depths of 1750 metres
• Systems have been devised to eliminate as much risk as possible in these operations
Buoy Catching

- Deck Manipulators on Cargo rail (2 x 3t at 15m / 5t at 9m)
  - Hands free Buoy Pick Up
Chaser Pendant Retrieval

- Deck Manipulators
  - Handsfree Pendant catcher
Deck Equipment

- Deck Manipulators
  - Assisting in chain connecting
Remote wire/chain alignment

- Anchor handling tong
  - Aligning chain or wire for entrapment by Karm fork

Alignment using tugger wires and winches
Securing chain/wire in anchor handling tong

- Anchor handling
  - Remote operation of securing devices

Conventional Procedure
personnel exposed to equipment under load before fully secured
UT 731 CD: Recessed A-frame system
Anchor Damaged During bringing on deck
Bulk Dry and Liquid cargo operations

- Hose handling for dry and liquid bulk cargoes offshore has been a regular contributor to injuries caused by manual handling and handling cumbersome equipment in cramped conditions.
- Automating this process has recently become a reality with special equipment being fitted to both offshore installations and the vessels servicing them.
Typical older bulk manifold area
Automated Bulk Cargo System
Automated Bulk Cargo System

Bulk hose handling simulator.wmv
Accommodation and other enhancements

• Sound proofing
  – Floating floors
  – Double glazing

• Decreased ladder/stairway angles

• Wider stairs and alleyways

• Improved hand rails

• Stabiliser tanks to reduce vessel motion
Accommodation and other enhancements

Double glazing reduces external noise by approx. 25%
Hose Handler on new build

Hose handling

Hose connection points

Hose crane guide catcher
Offshore Vessel and Crane Simulation

OSC_crane.wmv
Stairways and Ladders

OLD !

NEW !
Stairways and Ladders

OLD!

NEW!
Towing a semi-submersible rig on a ‘fresh day
Towing a semi-submersible rig on a ‘fresh day’
Hull under tow from Poland to Norway for outfit