Vessel Reference System, VRS

- What is it?
- Why have it?
VRS Components

- Motion Reference Unit (IMU), MRU.
- Integrated IMU/GPS, Seapath 200.
- Helideck Monitoring System, HMS 100.
- DGPS Positioning System, Seatex DPS.
- Dynamic and Relative Positioning System, Seatex DARPS.
Inertial Measurement Unit, IMU at center of System

- To determine your exact HPR Transducer Location or GPS Antenna Locations.
- To aid your multibeam or sonar equipment.
- Heave compensation of Offshore Cranes.
- *Seapath 200 Integrated IMU/GPS.*
- *HMS-100 Motion of Helideck.*
- *Motion Reference Unit, Seatex MRU.*
Integrated GPS/Inertial Technology

• Heading Aiding during Offshore Loading.

• Integrated Inertial/GPS system providing Position updates at 100 Hz.

• High Accuracy Gyro Calibration.

• Heading, Roll, & Pitch Accuracy of 0.05 degrees.

• Seatex Seapath 200.
Precise Positioning

- DPS - DGPS Positioning System.
  - Robust, Reliable and Accurate Position.
  - Multiple DGPS Reference Stations.
  - IALA radio beacons, INMARSAT, FM radio, or any local or wide area reference station meeting the RTCM SC-104 standard.
  - Software tuned to handle dynamics of any vessel in heavy seas or low satellite coverage.

- Seatex DPS.
Precise Absolute and Relative Positioning

- DARPS - Dynamic and Relative Positioning System.
- Uses Seatex DPS for multiple Reference Stations.
  - IALA radio beacons, INMARSAT, FM radio, or.
  - any local or wide area reference station meeting the.
  - RTCM SC-104 standard.
- Seatex DARPS.
Helideck Monitoring System

• Utilizes Attitude measurements from the MRU to increase helicopter safety during landing operations on moving helidecks.

• Calculates and Energy Index value according to Wind Direction and Speed, Temperature, and Barometric Pressure.

• Index value dependent on Ship and Helicopter characteristics.

• Seatex HMS-100.
Add-ons or Upgrade Options

- Individual Components Easy to Integrate.
- Cost Benefit.
- Upgrade.
- Or Install All Components Initially.
North Sea Customers

- STATOIL FLEET - Oil Loading
- PGS - Seismic
- Supply Vessels
- FPSOs
Conclusion

• The Vessel Reference System is a modular method of integrating your positioning, velocity, and motion measurements.

• This is easily completed by using some of the Seatex products: MRU, Seapath 200, DPS, DARPS, and the HMS-100.

• These can be integrated at first installation or upgraded piece by piece.
Dynamic Positioning Conference: Marine Technology Society

October 21 - 22, 1997

Seatex Internal Presentation Theme

by: Michael Ingram: Seatex

Session 8: Positon, Environment and Attitude Sensors
Seatex Internal Presentation Theme

• This talk to focus on:
  – Ability to add-on many systems
    • ease of integration
    • System as whole or piece by piece
  – Cost
  – Accuracy
  – Reliability

• Have a master system slide where “blank” slides are overlayed with the VRS components. Easy to put on and take off.
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North Sea Dominance

• Haakon to put something in here.
Overall Picture

This slide to have a picture of a vessel with a helipad, DP, and/or mulitbeam and possibly offloading oil. It should have a need for all the components of the VRS.