

# Fact Sheet - Valhall Life of Field Seismic (LOFS)



Permanent Seismic installation to provide 4D seismic on demand  
 Implementation Team: BP Norge and Valhall partners , BP Exploration and Production technology group.

## Life of field seismic array

- Extensive use of Advanced Technology
- More than 120 km seismic cables
- Covers 45 sq. Km.
- 4 component sensors
- Flexible and cost effective acquisition strategy
- Seismic source to be operated by standby vessel
- Direct access to data
- Transmission of data to shore by fiber cable

## Field activities - around 10 billion NOK investment in new projects

- Injection Platform:
  - Installed July/August 2003
- Two Flank Wellhead Platforms:
  - First oil from South Flank May 2003
  - North Flank installation August 2003, first oil March 2004
- More than 30 wells to be drilled from new platforms

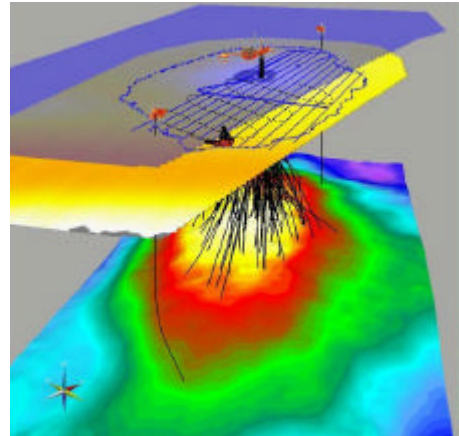
## Technology partners/providers

**Bolt:** New generation of seismic sources  
**Concept Systems:** Technology and services for navigation, communication, QA and data management  
**Facilium:** Project engineering, procurement and management services  
**Fugro:** Vessel & source positioning  
**I/O:** Digital source control system  
**OYO Geospace:** LoFS seismic array design and manufacturer  
**Rovde:** Vessel provider & marine operator  
**Subsea7:** Marine installation  
**Westland Geoprojects:** Innovative source handling & vessel engineering  
**Petroleum Geo Services (PGS):** Seismic processing. Processing- team to be co-located in BP Stavanger Office.  
**Valhall partners:** BP Norge 28,1% (operator), Norske Shell 28,1%, Amerada Hess 28,1 %, Total E&P Norge 15,7%

## Value

- Cost savings
- Will deliver additional production earlier
- Fewer dry holes
- Better wells
- HSE: fewer people, less fuel, no helicopter and small boat work
- Shear waves: improves images of top reservoir
- Net savings in LoFS versus repeat conventional survey /OBS

## Illustration



## Statistics:

- Investment 40 - 45 \$US
- Shooting area: 125 sq. km
- 7 Terabyte of data per survey
- 50.000 Shots per Survey
- Survey durations: 15 days
- Marine staff: 6
- Remotely operated data recording and temporary storage of data at platform
- Disk capacity at platform 13.6 Terabytes
- Transfer of data onshore via optical link (2x158 Mbits)
- Total weight of in-sea equipment 355 tons
- More than 10.000 sensors on the seafloor
- Static pressure measurements
- 6 surveys planned for the first 18 months

## Reservoir

- License/block no.: PL006/Block 2/8
- Location: Norwegian North Sea
- Date discovered 1975
- First production 1982
- Platforms at field center 4
- Field production 80,000 bpd (2002)
- Field life /licence expires 2028
- Production to date (1.1.2003) 471 million stb oil
- Expected ultimate recovery from the field 1050 million stb oil
- Expected recovery rate – 1982 14%
- Expected recovery rate – 2003 40%

## BP Norge contacts:

Olav Barkved ,lead geophysicist;  
 Teleph: +47 52013270 Mob: +47 93482256, barkveoi@bp.com  
 Arnfinn Bærheim, LOFS installation project manager;  
 Teleph: +47 52013260 Mob: +47 93482474, baerheag@bp.com  
 Jan Erik Geirmo, advisor;  
 Teleph: +47 52013205 Mob: +47 93482596 .geirmoje@bp.com

**Valhall partners:**

