How do regulators address Subsea leak detection

Odd Hagerup
Petroleum Safety Authority
HSE Regulations

**ONSHERE**
- Technical and operational regulations

**COMMON ONSHORE AND OFFSHORE**
- The framework regulations
- The management regulations

**OFFSHORE**
- The facilities regulations
- The activities regulations

National and International Standards including European Standards

- Ptil
- Hdir/Htil
- Klif
HSE Regulations

- The regulations are functional requirements
- There are no detailed requirements on leak detection (instrumentation) for specific equipment or system

- Reference to standards: Norsok U-001, ISO 13628 …..
HSE Regulations

Relevant §’s in the regulations:

• The Frame work
  - §11 Risk reduction principles
  - §48 Duty to monitor and record data from the external environment

• The management
  - § 5 Barriers
  - § 8 Internal requirement

• The facility
  - § 5 Design of facilities
  - § 8 Safety functions
  - §17 Instrumentation for monitoring and recording

• The activities
  - §52 Cooperation on and planning of environmental monitoring
Leaks reported to PSA, subsea installations in operation, 2003–2011 (Aug)

One HC leak detected by detector.
Interface is manifold/expansion loop
Incidents reported 01.01.97 – 01.08.09 Subsea and pipelines

• Total 47 incidents - 5 graduated as serious
• 25 Hydrocarbon leakages
  - Localised to:
    - Wellhead equipment
    - Connectors
    - Flexible pipes
    - Pipelines and pipeline connections
    - Valves
    - HUB’s - flanges
    - Flow lines
    - Bundles