



NORWEGIAN PETROLEUM  
DIRECTORATE

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# The Norwegian Data Management approach

**Data Management**

**Phnom Penh**

**March 2012**



# The Norwegian Data Management approach

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- ◆ **Legislation** (reporting, confidentiality, archiving etc)
- ◆ **Reports/maps/press releases**
- ◆ **Databases**
- ◆ **Internet/Fact pages**
- ◆ **License web, EW, RNB-rep, DISKOS**
- ◆ **Success criteria (NPD view)**



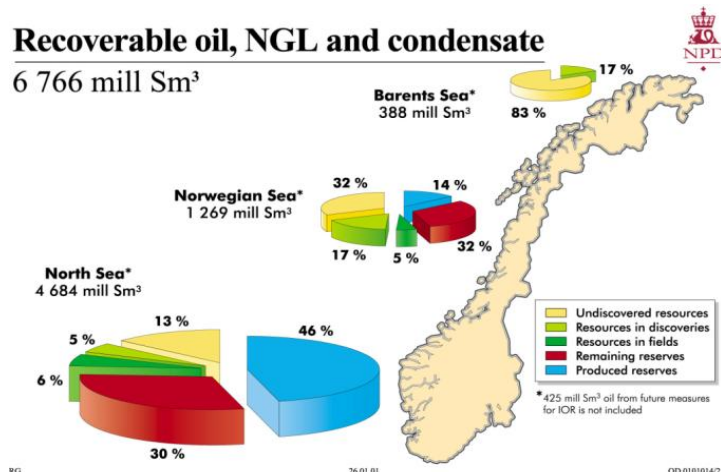
# Data management



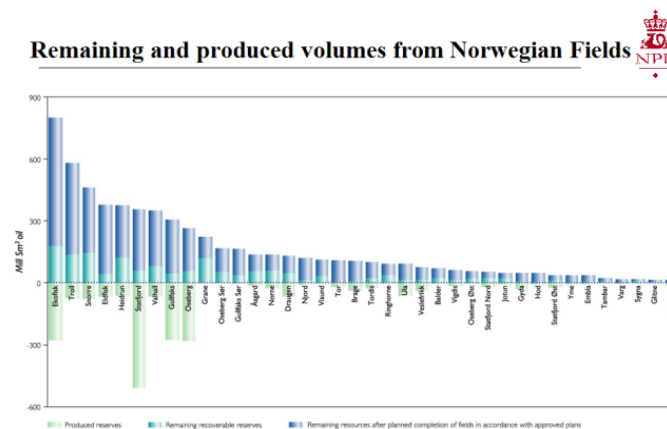
- ◆ do strategic planning
- ◆ attract foreign investment
- ◆ control big international oil companies
- ◆ challenge the oil companies (resource management & safety)
- ◆ increase the “government take” by assisting oil companies to operate more efficiently

## Recoverable oil, NGL and condensate

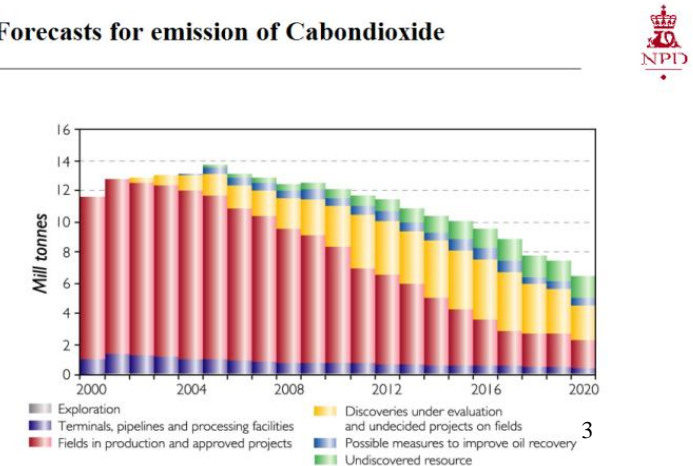
6 766 mill Sm<sup>3</sup>



## Remaining and produced volumes from Norwegian Fields



## Forecasts for emission of Cabondioxide





NORWEGIAN PETROLEUM  
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# Data Legislation



# The Petroleum Act 29 November 1996

*(revision of previous legislation)*

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- ◆ The Legislation:
- ◆ §10-4 Material and information concerning the petroleum activities
  - ◆ Outlines the framework for reporting to the authorities
  - ◆ Legislation apply to anyone generating information regarding petroleum activity
  - ◆ Licence operators have a special responsibility for data
  - ◆ Material and information shall be submitted to the Ministry or to anyone designated by the Ministry.

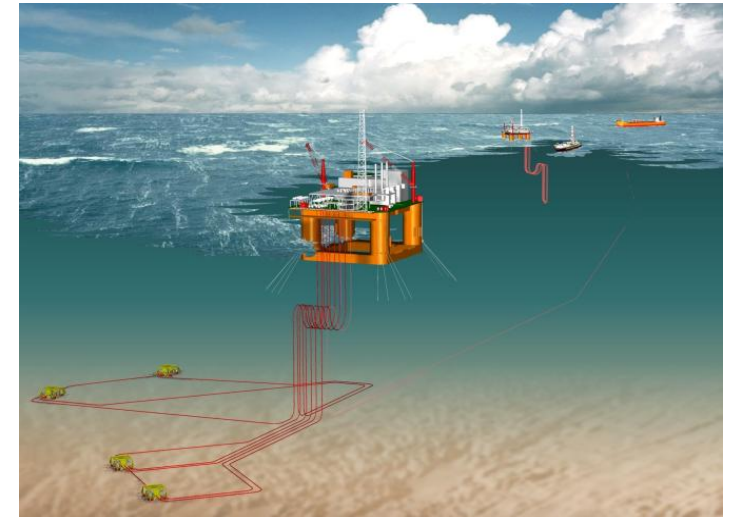


# Data Reporting to the NPD

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- ◆ NPD is entitled to all information the oil companies have regarding their activity in Norway.
- ◆ The Petroleum Act allows NPD to formulate detailed routines for reporting.
- ◆ NPD holds a seat in all licence committees as an observer.
- ◆ NPD gives drilling permission.
- ◆ NPD gives permission to perform all seismic surveys.
- ◆ If received information is not sufficient, additional reporting can be requested by NPD.



Kristin Field - Statoil



# Data Ownership in Norway

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- ◆ Data is owned by the company that pays for its initial acquisition and thus has the “copyright” or intellectual property rights
  - ◆ oil company (private or state owned)
  - ◆ licence group
  - ◆ spec company
  - ◆ NPD
- ◆ Data may be purchased – User Rights or Owner Rights
  - ◆ User entitlements to the data can be easily changed
- ◆ Data may be traded – User Rights only
  - ◆ Data may be traded
  - ◆ Managed by OLF – The Norwegian Oil Industry Branch Organisation



# Confidentiality - Release of data

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## § 85 Regulations to Act relating to petroleum activities

- ◆ Release of seismic data/well data
  - ◆ Licence data is confidential for 2 years
  - ◆ Data not owned by a licence group is confidential for 5 years
  - ◆ Market available data is confidential for 10 years.
  - ◆ Interpreted data is confidential for 20 years
  - ◆ Data from a licence area which is relinquished or surrendered, is no longer confidential.





# Resource Data Management

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## Information flow from oil companies to NPD

- ◆ Basis for the authorities' planning of future activity.
- ◆ The authorities' own judgement of existing activity.
- ◆ Secure efficient sharing of information.
- ◆ Ensure sufficient information to the public.



# Data Access is not only a question of technology and procedures!

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- ◆ Legislation through the Petroleum Act gives the NPD a powerful tool through which we can ensure that data is collected, **according to specific standards**
- ◆ data collected and managed in formats that will stand the **test of time**
- ◆ Collaborate with standards organisations
  - ◆ Energistics, SEG etc



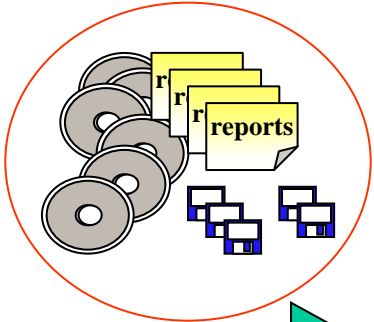
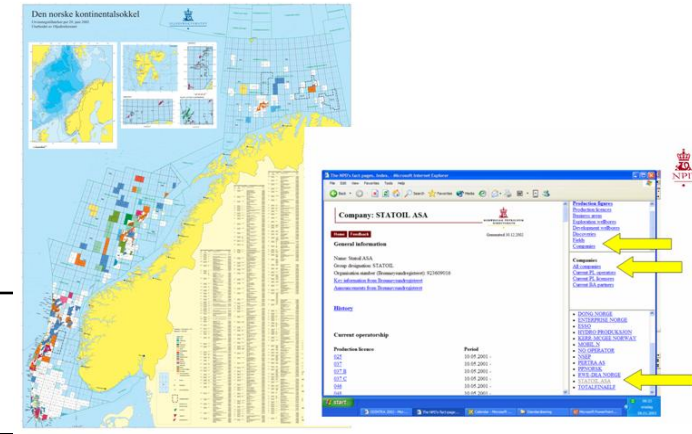
# Who will use NPD data?

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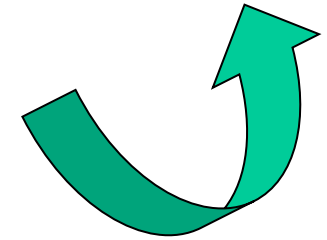


- ◆ Government,
- ◆ Oil companies,
- ◆ Service companies,
- ◆ Public
- ◆ R&D, students

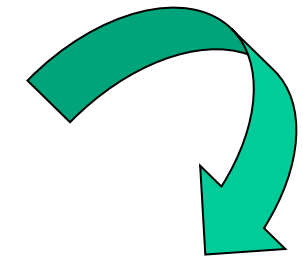




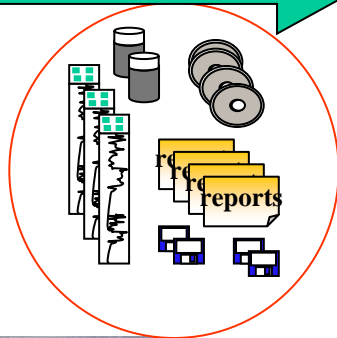
The collage illustrates the data lifecycle from reporting to distribution. It includes the Norwegian Petroleum Directorate building, a warehouse, a server rack, a pyramid diagram showing data levels (Raw data, Interpreted data, Reference data) with associated software (ILGI, MS Access, Excel, Petra, Samba, Petr. Register, SISU, CDRS, Ephorte, Petr. bank), and a cartoon of a person overwhelmed by data.



Data distribution



Data reporting



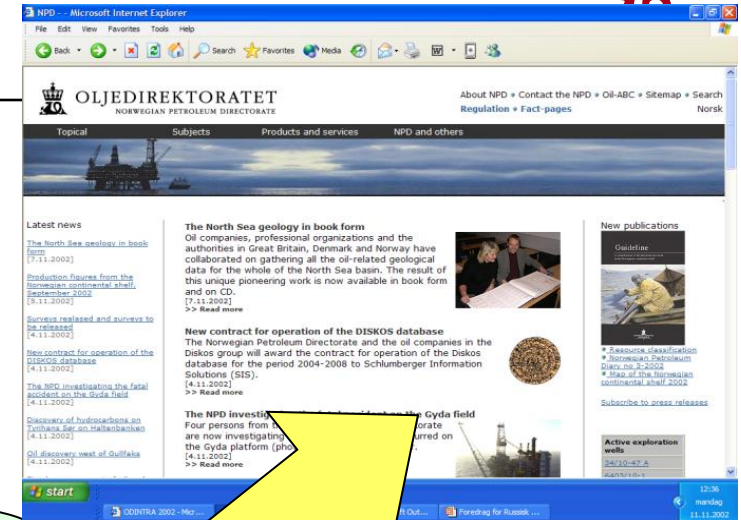
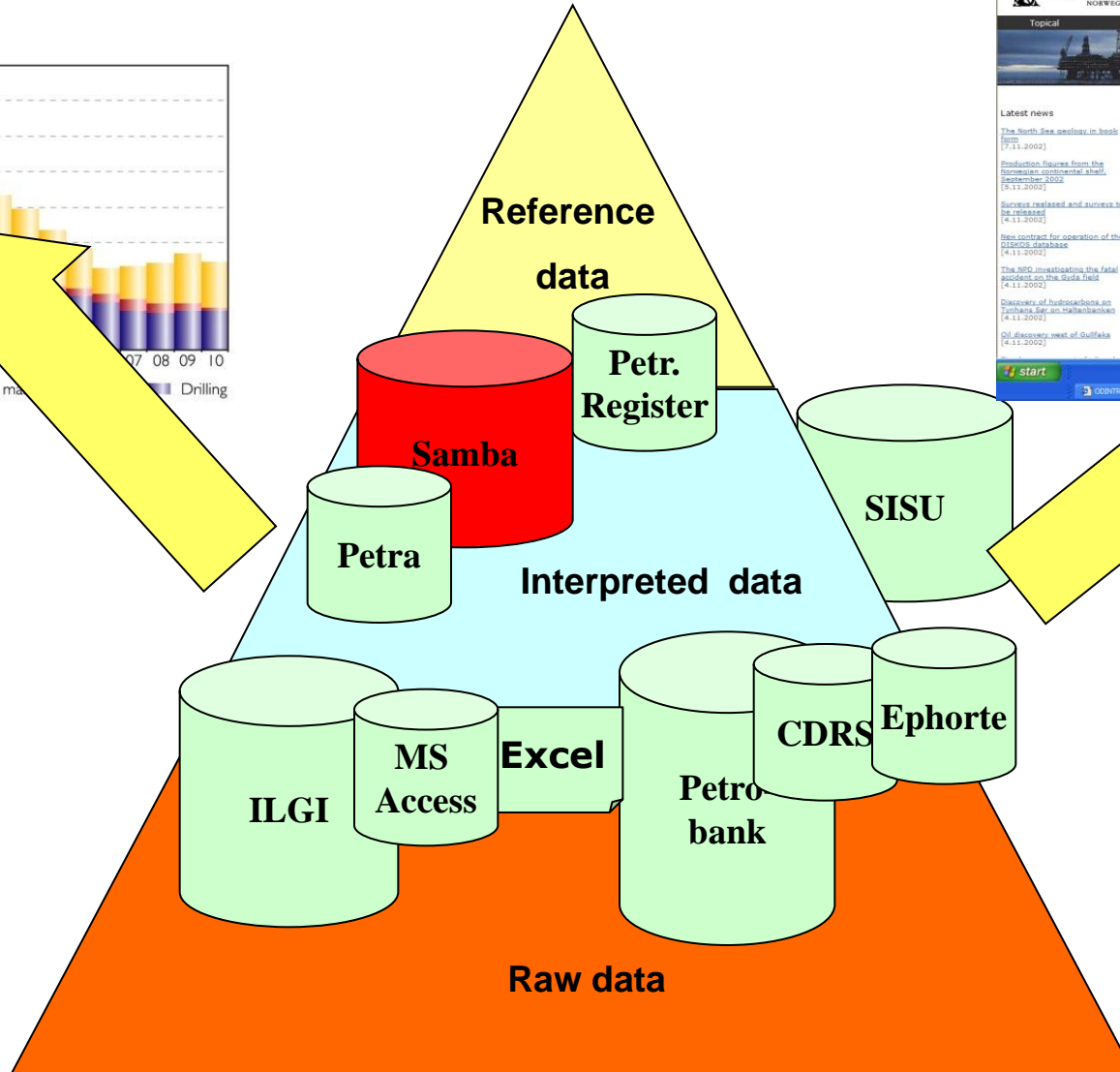
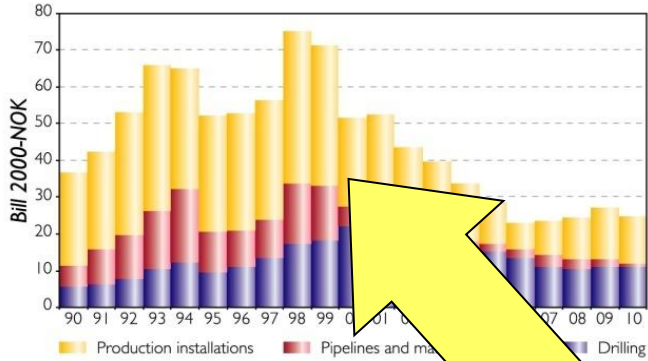
NPD

19.08.2008

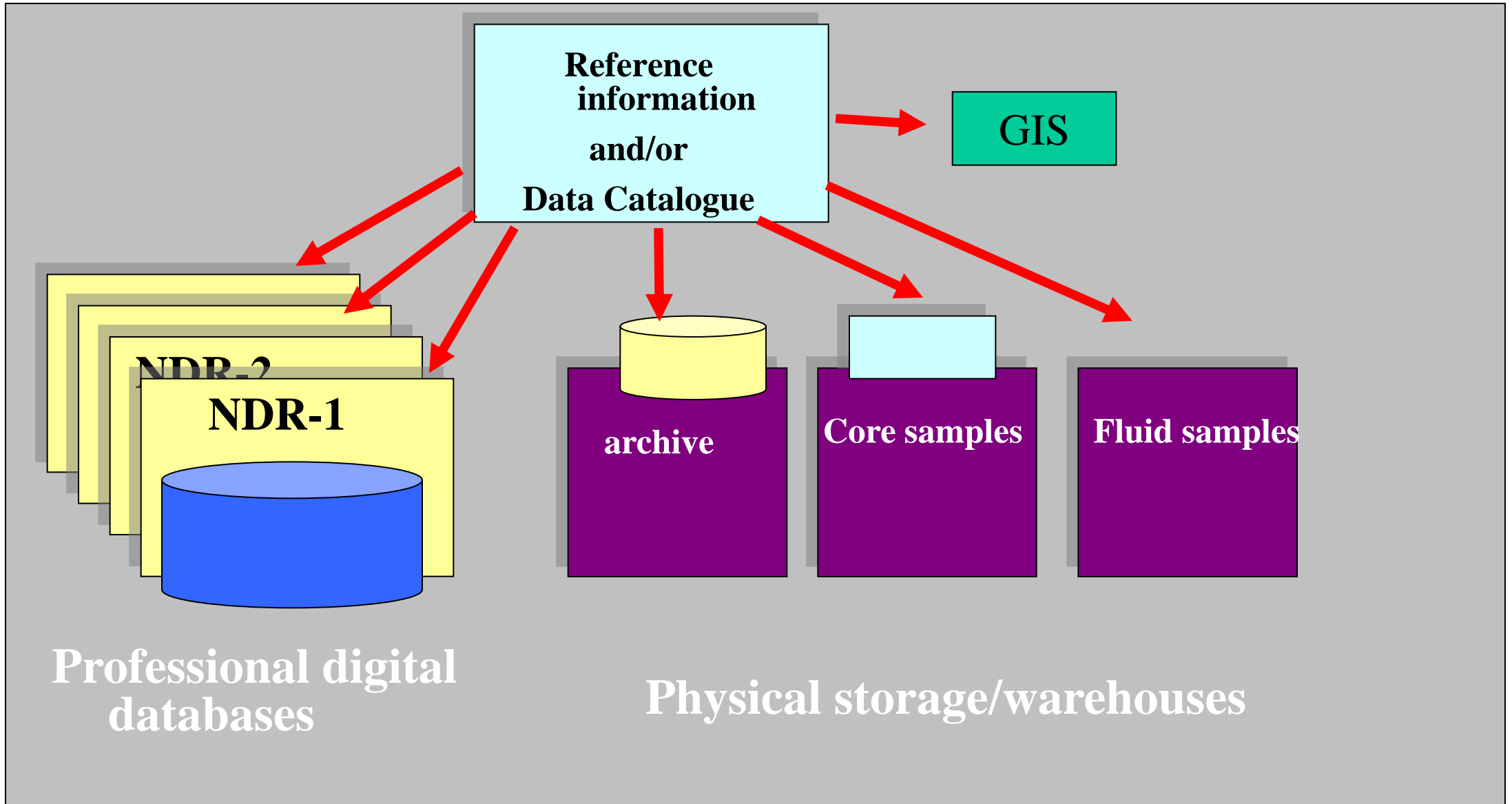


12

# Data is stored in several databases

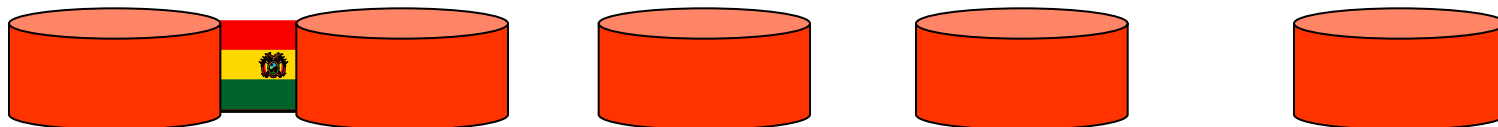


# National Data Repository Concept



Professional digital databases

Physical storage/warehouses



Oil company databases<sup>14</sup>



# Factual basis

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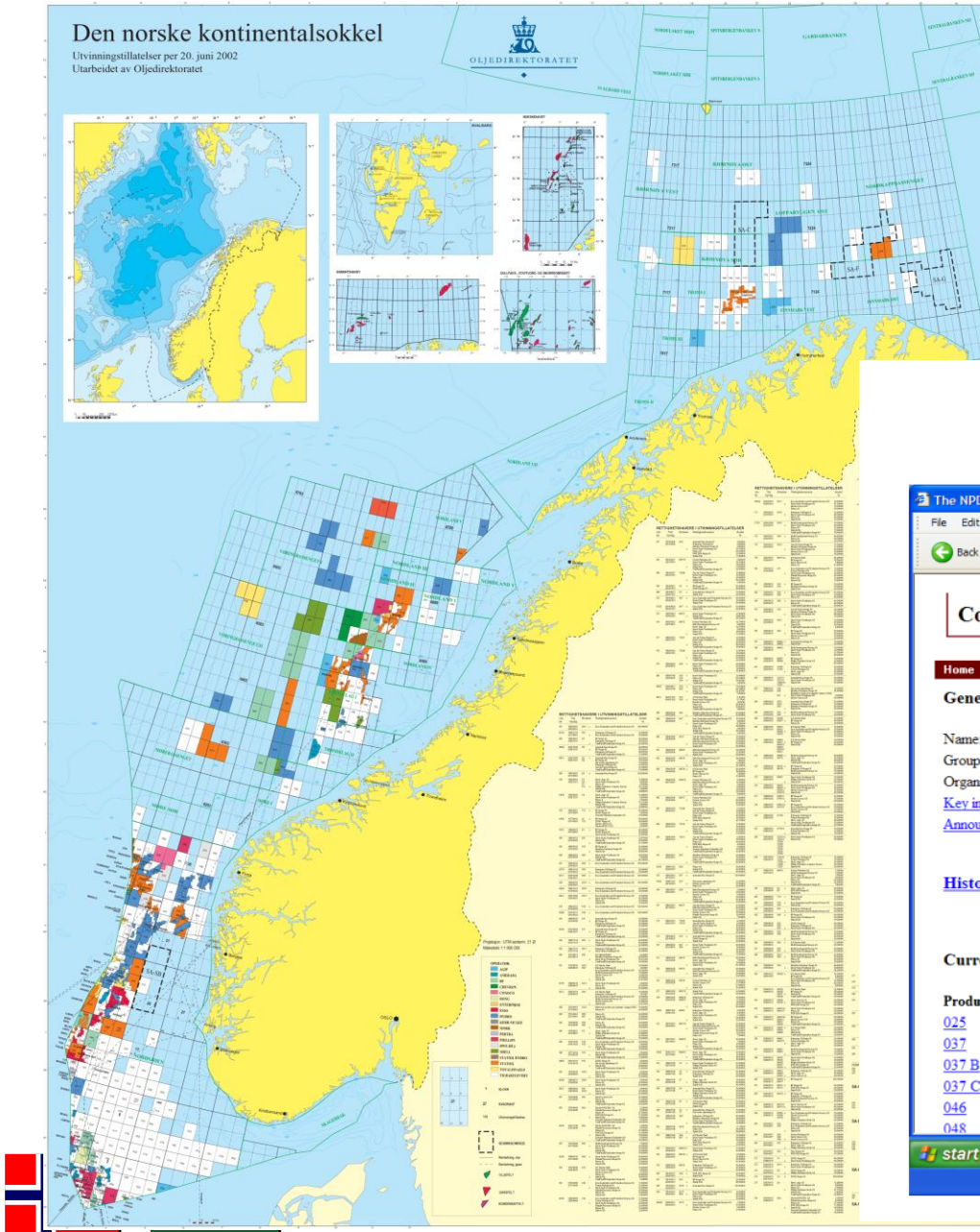


- ◆ Core store
- ◆ Offshore data
- ◆ Continental shelf map

*Cores in the NPD's store*



# Administrative records



www.npd.no

The screenshot shows the NPD website interface in Microsoft Internet Explorer. The page title is "The NPD's fact-pages. Index. - Microsoft Internet Explorer". The main content area displays information for "Company: STATOIL ASA".

**Company: STATOIL ASA**

Generated 30.12.2002

**General information**

Name: Statoil ASA  
Group designation: STATOIL  
Organisation number (Bronnoysundregisteret): 923609016  
[Key information from Bronnoysundregisteret](#)  
[Announcements from Bronnoysundregisteret](#)

**History**

**Current operatorship**

Production licence	Period
<a href="#">025</a>	10.05.2001 -
<a href="#">037</a>	10.05.2001 -
<a href="#">037 B</a>	10.05.2001 -
<a href="#">037 C</a>	10.05.2001 -
<a href="#">046</a>	10.05.2001 -
<a href="#">048</a>	10.05.2001 -

**Navigation menu (right side):**

- [Production figures](#)
- [Production licences](#)
- [Business areas](#)
- [Exploration wellbores](#)
- [Development wellbores](#)
- [Discoveries](#)
- [Fields](#)
- [Companies](#)

**Companies list (bottom right):**

- [All companies](#)
- [Current PL operators](#)
- [Current PL licensees](#)
- [Current BA partners](#)

**Current operatorship list (bottom right):**

- [DONG NORGE](#)
- [ENTERPRISE NORGE](#)
- [ESSO](#)
- [HYDRO PRODUKSJON](#)
- [KERR-MCGEE NORWAY](#)
- [MOBIL N](#)
- [NO OPERATOR](#)
- [NSEP](#)
- [PERTRA AS](#)
- [PPNORSK](#)
- [RWE-DEA NORGE](#)
- [STATOIL ASA](#)
- [TOTALFINAELF](#)

Yellow arrows point to the "Fields" link, the "Companies" link, and the "STATOIL ASA" entry in the operatorship list.





# The NPD Fact Pages and Fact Maps



**OLJEDIREKTORATET**  
NORWEGIAN PETROLEUM DIRECTORATE

The NPD's Fact-pages

[Home](#) [Feedback](#)

## Total production from the Norwegian Continental Shelf per year. Charts.

### Net production of saleable products (Norwegian share)

Last 24 months

### Complete history

### Current licensee(s)

Period	Company
06.05.2003 -	<a href="#">Total E&amp;P Norge AS</a>
-	<a href="#">Marathon Petroleum</a>

### Current operator(s)

Period	Company
06.05.2003 -	<a href="#">Total E&amp;P Norge AS</a>

### Current area(s)

Period	Nation	Block	Polygon	Area
09.03.1992 -	NO	24/6	1	

### Exploration wellbore(s) ordered

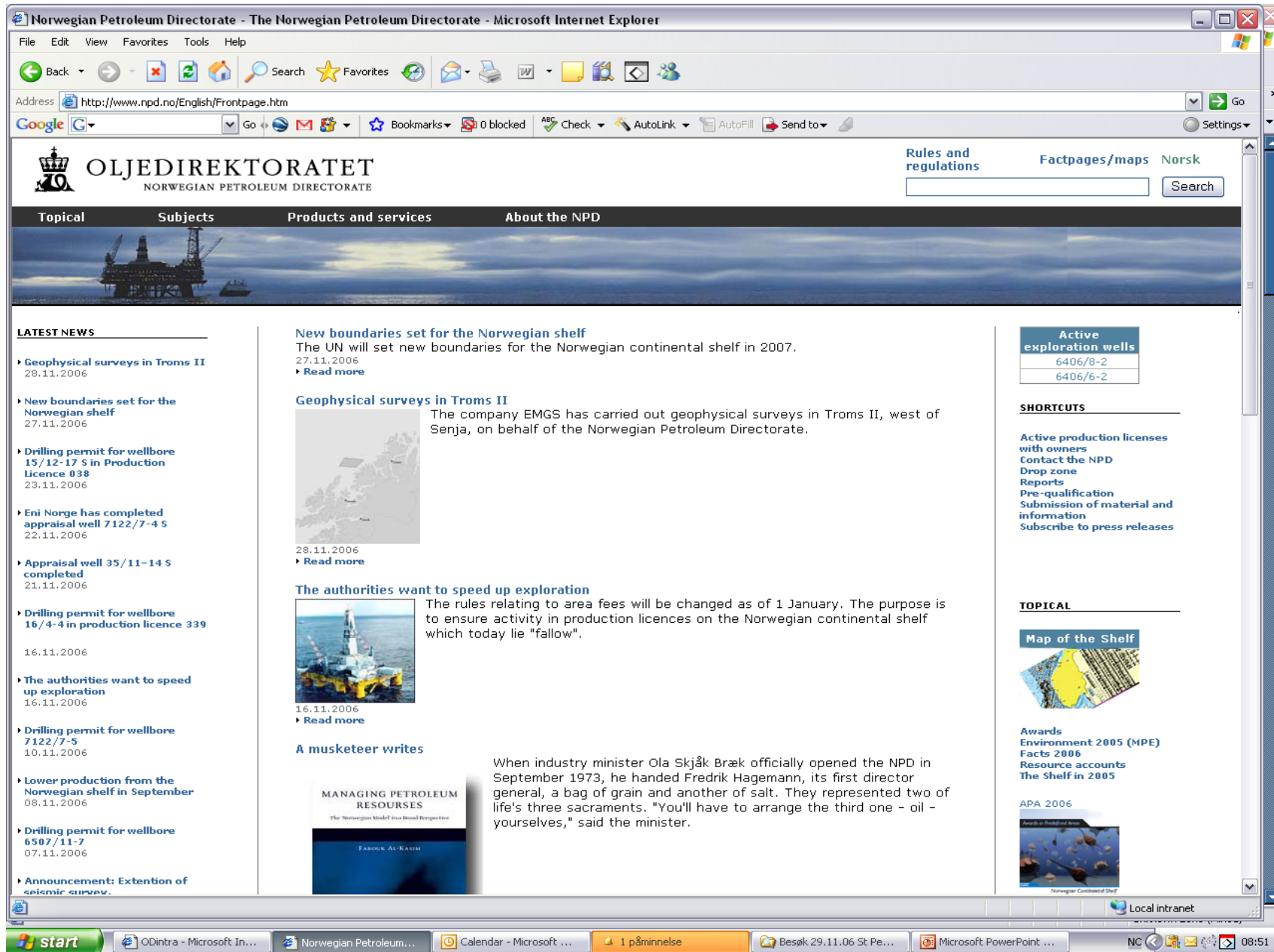
Name	Wellbore entry date	Completed
<a href="#">24/6-1</a>	09.02.1985	25.08.1985

- [Production figures](#)
- [Companies](#)
- [Production licences](#)
- [Business areas](#)
- [Discoveries](#)
- [Fields](#)
- [Exploration wellbores](#)
- [Development wellbores](#)
- [Facilities](#)
- [Downloads](#)

### Production figures

[Norwegian continental shelf](#)

- [Complete history](#)
- [Per field, current year](#)



**Norwegian Petroleum Directorate - The Norwegian Petroleum Directorate - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Address <http://www.npd.no/English/Frontpage.htm>

Google

**OLJEDIREKTORATET**  
NORWEGIAN PETROLEUM DIRECTORATE


Rules and regulations Factpages/maps Norsk


Topical Subjects Products and services About the NPD

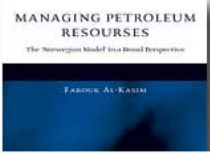
**LATEST NEWS**

- ▶ **Geophysical surveys in Troms II**  
28.11.2006
- ▶ **New boundaries set for the Norwegian shelf**  
27.11.2006
- ▶ **Drilling permit for wellbore 15/12-17 S in Production Licence 038**  
23.11.2006
- ▶ **Eni Norge has completed appraisal well 7122/7-4 S**  
22.11.2006
- ▶ **Appraisal well 35/11-14 S completed**  
21.11.2006
- ▶ **Drilling permit for wellbore 16/4-4 in production licence 339**  
16.11.2006
- ▶ **The authorities want to speed up exploration**  
16.11.2006
- ▶ **Drilling permit for wellbore 7122/7-5**  
10.11.2006
- ▶ **Lower production from the Norwegian shelf in September**  
08.11.2006
- ▶ **Drilling permit for wellbore 6507/11-7**  
07.11.2006
- ▶ **Announcement: Extension of seismic survey.**

**New boundaries set for the Norwegian shelf**  
The UN will set new boundaries for the Norwegian continental shelf in 2007.  
27.11.2006  
▶ [Read more](#)

**Geophysical surveys in Troms II**  
  
The company EMGS has carried out geophysical surveys in Troms II, west of Senja, on behalf of the Norwegian Petroleum Directorate.  
28.11.2006  
▶ [Read more](#)

**The authorities want to speed up exploration**  
  
The rules relating to area fees will be changed as of 1 January. The purpose is to ensure activity in production licences on the Norwegian continental shelf which today lie "fallow".  
16.11.2006  
▶ [Read more](#)

**A musketeer writes**  
  
When industry minister Ola Skjåk Bræk officially opened the NPD in September 1973, he handed Fredrik Hagemann, its first director general, a bag of grain and another of salt. They represented two of life's three sacraments. "You'll have to arrange the third one - oil - yourselves," said the minister.

**Active exploration wells**


6406/8-2
6406/6-2

**SHORTCUTS**

- Active production licenses with owners
- Contact the NPD
- Drop zone
- Reports
- Pre-qualification
- Submission of material and information
- Subscribe to press releases

**TOPICAL**

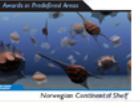
**Map of the Shelf**



**Awards**

- Environment 2005 (MPE)
- Facts 2006
- Resource accounts
- The Shelf in 2005

APA 2006



Local intranet

start | ODintra - Microsoft In... | Norwegian Petroleum... | Calendar - Microsoft ... | 1 påminnelse | Besøk 29.11.06 St Pe... | Microsoft PowerPoint ... | NC | 08:51

# NPD www.npd.no:



Norwegian Petroleum Directorate - The Norwegian Petroleum Directorate - Microsoft Internet Explorer

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Rules and regulations Factpages/maps Norsk

Search

Topical Subjects Products and services About the NPD

**LATEST NEWS**

- ▶ **Drilling permit for well path 7122/6-2 in production licence 110B**  
21.06.2006
- ▶ **Announcement: Seismic surveys in the Norwegian Sea**  
21.06.2006
- ▶ **Announcement: Seismic surveys in the Barents Sea**  
16.06.2006
- ▶ **Talisman Energy Norge has completed the appraisal well 7/8-5 S**  
15.06.2006
- ▶ **Statoil has completed appraisal well 6506/11-8**  
15.06.2006
- ▶ **Statoil has completed exploration well 34/11-5 S in the North Sea**  
15.06.2006

**Fragments from another Norwegian oil history**  
Two documents are frequently quoted when recounting Norway's early oil history - Erik Pontoppidan's Natural History of Norway of 1752 and a letter from the Norwegian Geological Survey to the Ministry of Foreign Affairs in 1958\*. Little worth noting by the oil historian seems to have happened between these two dates. But appearances can be deceptive.  
30.05.2006  
▶ [Read more](#)

**Slim pickings can yield big rewards**  
The oil in thin zones beneath the Frigg gas field was lost as the gas was produced. Similar resources beneath Troll have become a gold mine, while a decision is pending on the Snøhvit case. Such formations have been and remain a challenge.  
14.05.2006  
▶ [Read more](#)

**Facts 2006**  
  
07.04.2006  
▶ [Read more](#)

The Norwegian Petroleum Directorate and the Ministry of Petroleum and Energy hereby launch "Facts 2006 - The Norwegian petroleum sector". The publication provides a general overview of all relevant information regarding the Norwegian continental shelf.

Active exploration wells
6608/11-5
6403/6-1
6506/11-8
9/4-5

**SHORTCUTS**

- [Active production licenses with owners](#)
- [Contact the NPD](#)
- [Drop zone](#)
- [Reports](#)
- [Pre-qualification](#)
- [Submission of material and information](#)
- [Subscribe to press releases](#)

**TOPICAL**

[Map of the Shelf](#)

http://www.npd.no/English/ Local intranet

start Inbox - Mic... oedkina190... 3. NPD - da... Opplaering... 6 Interne... Forslag til p... LicenseWeb NO 10:09



# NPD fact map

NPD FactMaps - Microsoft Internet Explorer

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Back Forward Stop Refresh Home Search Favorites

Address <http://217.68.117.237/website/NPDGIS/viewer.html> Go Links

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NORWEGIAN PETROLEUM DIRECTORATE

**NPD Map Search** [Help](#)

Search for:

Facility  
 Wellbores  
 Geology  
 Fields

Visible	Active	Layer name
<input checked="" type="checkbox"/>	<input type="radio"/>	Fields
<input checked="" type="checkbox"/>	<input type="radio"/>	Discoveries

Licencing

Visible	Active	Layer name
<input type="checkbox"/>	<input type="radio"/>	Business areas
<input checked="" type="checkbox"/>	<input type="radio"/>	Overlapping licences
<input checked="" type="checkbox"/>	<input type="radio"/>	Production licences
<input type="checkbox"/>	<input type="radio"/>	Seismic areas
<input type="checkbox"/>	<input type="radio"/>	APA open

Borders and areas

Visible	Active	Layer name
<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	Blocks
<input checked="" type="checkbox"/>	<input type="radio"/>	Quadrants
<input checked="" type="checkbox"/>	<input type="radio"/>	Sub areas
<input checked="" type="checkbox"/>	<input type="radio"/>	Countries



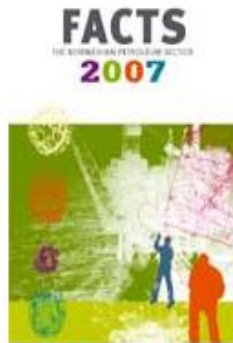
19.08.2008



# Publications



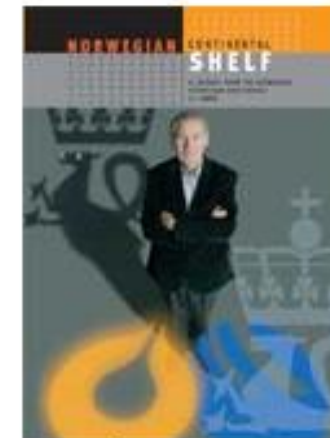
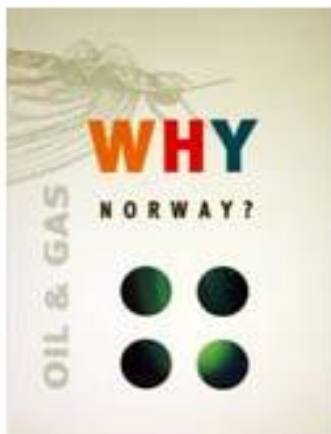
The Resource report  
2007



Facts 2007



21.08.2007



Awards  
Environment 2005 (MPE)



19.08.2008

# Data Access in Norway

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- ◆ NPD

- ◆ NPD Fact pages
- ◆ Well data
- ◆ Core photos
- ◆ Production figures
- ◆ Interpreted data – on application

- ◆ Diskos Database

- ◆ Detailed Seismic Data
- ◆ More Well data (well logs, reports etc)
- ◆ Monthly production data

- ◆ Data trade/purchase among companies

- ◆ Any data

Free of charge or subject to copying cost only



# Types of Data reported to NPD

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- ◆ **Resources (volume) – Resource category 0-8**
  - ◆ **In-Place volumes**
  - ◆ **Reserves**
  - ◆ **Contingent resources**
  - ◆ **Prospective resources** (prospects) within licensed areas
  
- ◆ **Profiles for Reserves and resources in planning phase**
  - ◆ **Production sales profiles**  
Oil, Gas, NGL and Condensate, including uncertainty ranges
  - ◆ **Costs**  
Investments (CAPEX), Operating cost (OPEX), Tariff expenditures

## **Environmental data**

- ◆ **Emissions**

# Co-operations with oil companies on DM

- ◆ NBR-reporting
- ◆ DISKOS
- ◆ Licence web (LW)
- ◆ Environment web (EW)
- ◆ OLF Integrated Operation, Quality Information





# Input of updated "Masterdata" from NPD

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- List of all valid names and relations of
  - Exploration wellbores
  - Development wellbores
  - Fixed Facilities
  - Movable facilities (drilling rigs)
  - Fields
  - Operator oil companies
  - Partner oil companies
  - Transportation and utilization facilities
  - Land terminals



# Success criteria

- ◆ Top management must recognize the importance
- ◆ Sufficient resources must be spent on data management
- ◆ Work must be done systematically on this for a number of years
- ◆ Authority agency must have a good relationship with oil companies and the different roles must be respected



**The Acknowledgement 1992**

WEEK OF NOVEMBER 4, 1991  
A PennWell Publication


**OIL & GAS JOURNAL**

INTERNATIONAL PETROLEUM NEWS AND TECHNOLOGY

**OGJ SPECIAL**

ANNUAL GEOPHYSICAL REPORT

Trends: providing value-added technology

The author...  
  
 Lawyer  
 L. C. (Sam) Taylor is chief geophysicist of Chevron Corp., a 1992 graduate of Stanford University, the first Stanford Ph.D. of Texas. Treasurer of Chevron, in a short representative on a recent crew, he has been deputy geophysicist for the Midcontinent and Bakken basins, chief geophysicist of Chevron Systems, and vice president of Chevron Services Co.

11/12/2002

4

**Work profile for geophysicist/geologist**

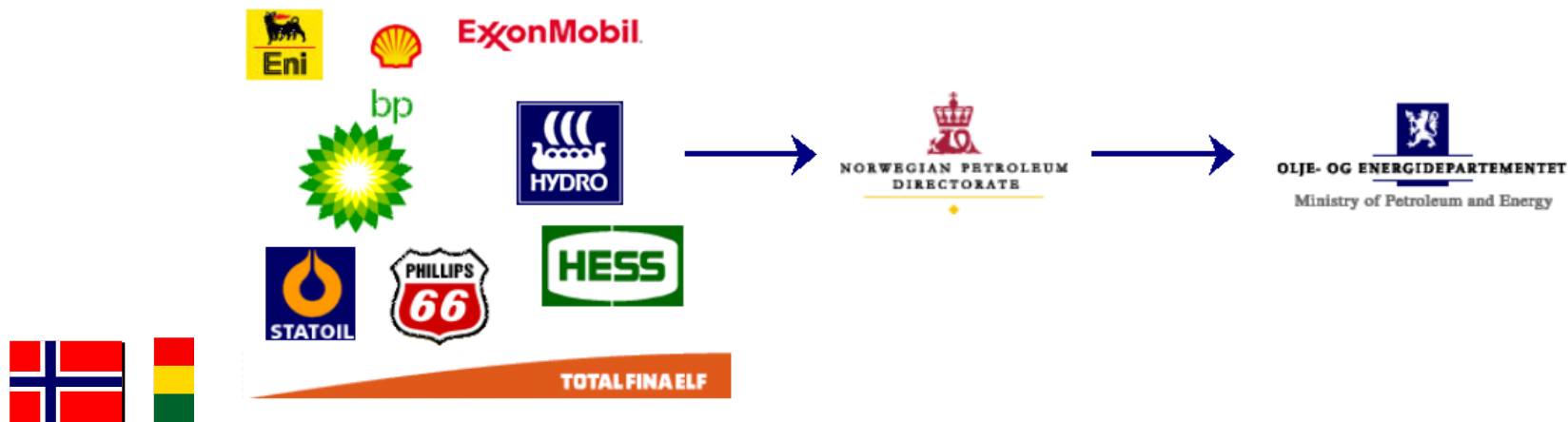
Category	Percentage
Looking for data	60%
Useful work	18%
Vacations	8%
Meetings and presentations	5%
Coffee Breaks	5%
Training	4%



# Important elements

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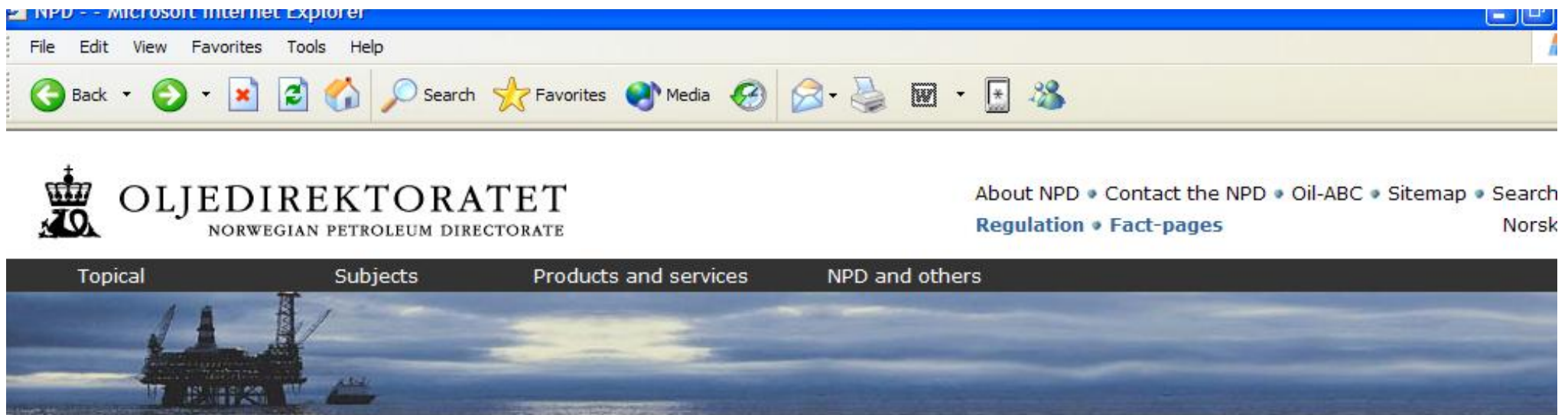
- ◆ A regulatory framework which authorizes the authority to request data from oil companies
- ◆ A competent staff to match the oil companies' experts
- ◆ Confidence that information will not be misused
- ◆ A complete set of administrative data



# Regulatory framework

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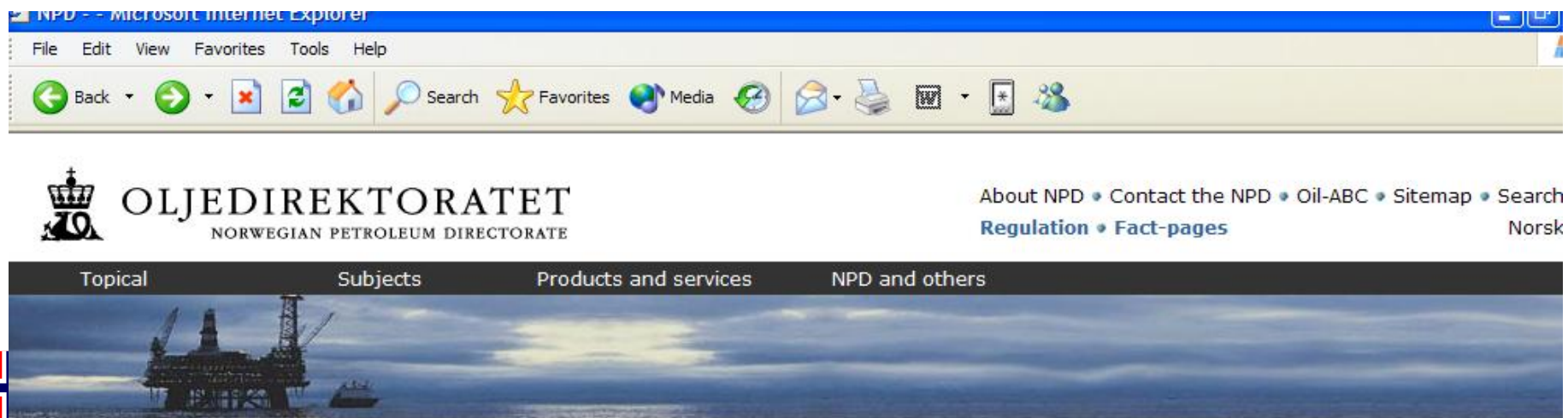
- ◆ Regular reporting according to specifications (free of charge)
- ◆ Access to all data needed
- ◆ Regulations on confidentiality and publication



# Regulatory framework

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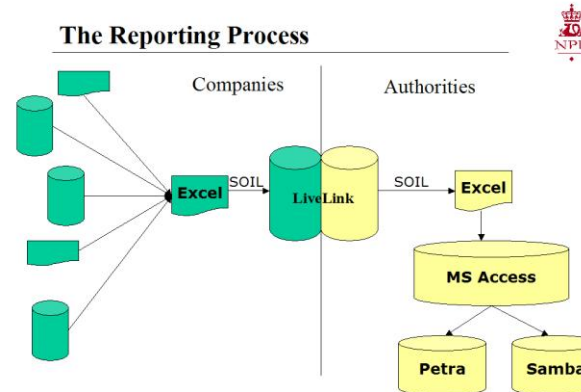
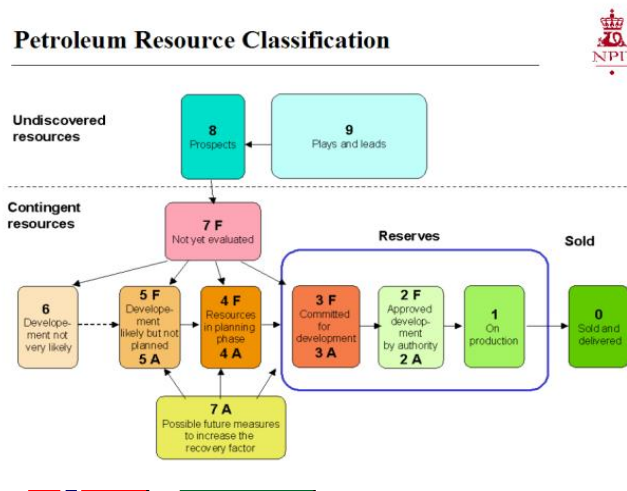
- ◆ Regular reporting from oil companies
- ◆ Access to all data
- ◆ Regulations on confidentiality and publication
  - ◆ Some data becomes public
  - ◆ Subsurface data to be kept confidential for a specified number of years
  - ◆ Oil companies interpretations are confidential for some years
  - ◆ Sensitive data (commercial damage to owner) kept confidential

A screenshot of the NPD website viewed in Microsoft Internet Explorer. The browser window title is 'NPD - Microsoft Internet Explorer'. The address bar shows the URL 'http://www.npd.no/'. The menu bar includes 'File', 'Edit', 'View', 'Favorites', 'Tools', and 'Help'. The toolbar contains icons for Back, Forward, Stop, Refresh, Home, Search, Favorites, Media, Print, and other functions. The website content includes the NPD logo (a crown over '70') and the text 'OLJEDIREKTORATET NORWEGIAN PETROLEUM DIRECTORATE'. Navigation links include 'About NPD', 'Contact the NPD', 'Oil-ABC', 'Sitemap', 'Search', 'Regulation', 'Fact-pages', and 'Norsk'. A dark navigation bar at the bottom contains the categories 'Topical', 'Subjects', 'Products and services', and 'NPD and others'. The main content area features a large image of an offshore oil rig at sea under a cloudy sky, with a small Norwegian flag icon in the bottom left corner.

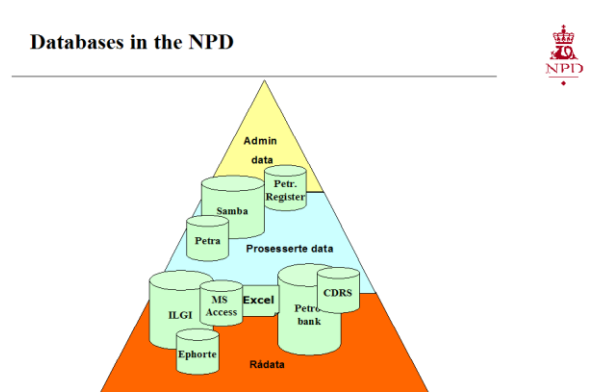


# Competent staff

- ◆ Develop specifications (data and format)
- ◆ Establish database for administrative data
- ◆ Continuously updating the databases (seismic, drilling, production, environment, accidents etc)
- ◆ Compiling data (resources, forecasts of production and investments)
- ◆ Making analyses based on own interpretations and reported data



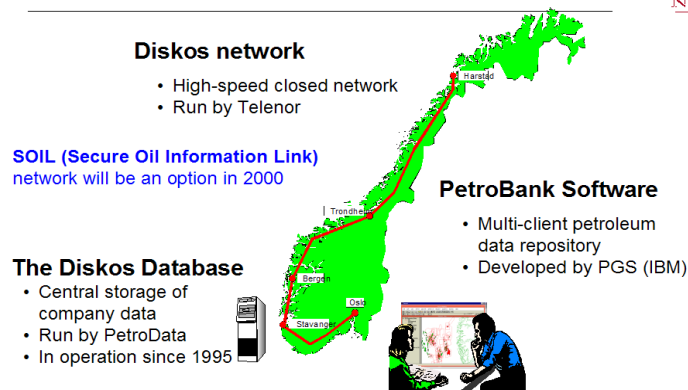
19.08.2008



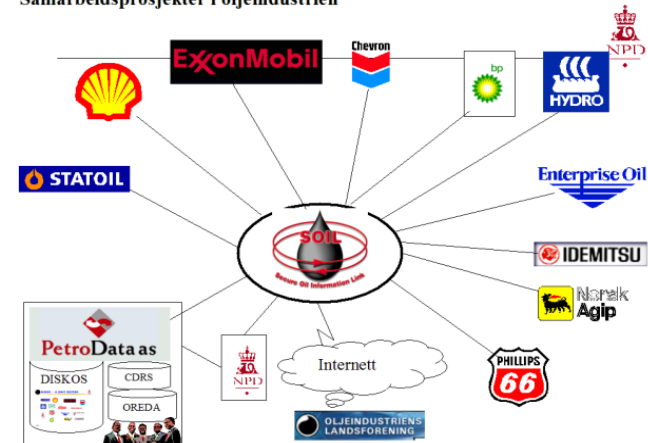
# Co-operation with oil companies

- ◆ Joint database for seismic, well and production data (DISKOS)
- ◆ Discussion forum for forecasts and uncertainty (FUN)
- ◆ Electronic secure network for reporting sensitive data (SOIL)
- ◆ Electronic collaboration work space for reporting data to the national budget (LiveLink)
- ◆ Electronic communication between oil companies with connections to NPD (Licence web)

## DISKOS SOLUTION 3 ELEMENTS



## Samarbeidsprosjekter i oljeindustrien





NORWEGIAN PETROLEUM  
DIRECTORATE



Thank you for your attention!



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