Offshore oil & gas activities in the Danish part of the North Sea

19 producing oil and gas fields
55 installations
3 operators

Water depth: 40 – 70 m
Dist. to nearest coastline: > 200 km

First HPHT field to start production in 2015
Legal Framework

Law on Environmental Protection of the Sea:

- Overall responsibility for combating of oil and chemical pollution at sea lies with the Ministry of Defense/Maritime Assistance Service (MAS)
- MAS is national contact point for the surveillance of pollution at sea
- Offshore oil & gas operators required to immediately initiate their own emergency response in case of spills of hydrocarbons or chemicals to the sea
- Ministry of Environment can issue orders to the operators on which types of emergency response to initiate, if a spill has taken place
- Sanctions, if operators do not comply with the order, but at present no sanctions if operators don’t by themselves initiate their emergency response.
- No requirements for an overall national external emergency response plan
- The Ministry of Defence/MAS has issued a plan for the state owned contingency equipment to be used in case of pollution of the sea from ships.
  - DEPA can request MAS to assist in combating a spill from an offshore installation, but the equipment is otherwise not available for the operators
  - Operators shall pay the cost of use of MAS assistance

Legal Framework

Order on preparedness in case of pollution of the sea:

Emergency response plans (spills of oil and chemicals to the sea):

- Contingency plans approved by DEPA, who can order the plans revised if needed
- Offshore operators to maintain contingency organizations (personnel and equipment) and to develop contingency plans
- Plans cover both exploration and production activities
- Required information:
  - Alarm and communication systems incl. notification of authorities
  - Organization, responsibilities and procedures for initiation of
  - Available equipment (type, capacity and location)
  - Actions taken in different pollution scenarios, combat methods, surveillance etc.
  - Exercise activities
- Requirements on training of contingency personnel and on the conduction of exercises, in which DEPA can participate
- DEPA conducts inspections on contingency procedures and equipment
Legal Framework

Specific technical requirements to the contingency equipment:
- Equipment for both mechanical and chemical combating of oil pollution
- The equipment should be able to handle the max. flow of oil from a production well or a pipeline or the estimated max. flow of oil from an exploration well
- Working criteria for oil skimmers, booms and transport equipment:
  - wave heights up to 2.5 meters and sea currents up to 1 knot
  - air temperatures: +50 to –20 °C, water temperatures: +40 to –1 °C
- Equipment to be at spill location within a time frame specified by DEPA taking into account the geographical location of the installations
- Use of chemical dispersants only after specific approval from DEPA

Reporting requirements (separate regulation):
- Immediately by e-mail to MAS: All spills of hydrocarbons and chemicals
- Spills > 5000 liters also immediately by telephone
  MAS forwards the e-mails to DEPA
- Immediately by phone to DEPA:
  - Spills > 5000 liters
  - All spills, if it is evaluated that they can be contained and recovered

Example of operator pollution report form

Operators to send this to the Maritime Assistance Service immediately after a spill has been detected
Main features of existing oil and chemical spill contingency plans approved by DEPA

- Based on risk assessments
- Covers all spills of oil and chemicals no matter the volume
- Tier based
  - Tier 1: Local resources (e.g. stand by vessels)
  - Tier 2: National private resources (e.g. ESVAGT or Mærsk Oil in Esbjerg)
  - Tier 3: International resources (Oil Spill Resources Ltd. in Southampton)
- Lists all the equipment available, the ownership of the equipment, where it is located and how fast it can be put into operation
- Prepared by operators
  - In case of drilling activities it is the operators responsibility that the contingency procedures are coordinated with the procedures of the drilling rig

![Signature explanation table and map](image)

Probability (%) of oil spreading at sea surface in case of a worst case blowout during the spring, when the oil will spread the most
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Present Danish oil spill contingency planning compared to the main requirements of the directive

<table>
<thead>
<tr>
<th>Article</th>
<th>Subject</th>
<th>Danish OSCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>14,1</td>
<td>Operators to prepare internal emergency response plans</td>
<td>Yes</td>
</tr>
<tr>
<td>14,1</td>
<td>Plans to be based on risk assessments</td>
<td>Yes (EIA)</td>
</tr>
<tr>
<td>14,1 An. 1, 10,8</td>
<td>Analysis of oil spill response effectiveness</td>
<td>No</td>
</tr>
<tr>
<td>28,1 a + 30,2</td>
<td>Emergency response to be put into action without delay</td>
<td>Yes</td>
</tr>
<tr>
<td>28,1 b</td>
<td>Plans to be consistent with the external emergency response plan</td>
<td>No</td>
</tr>
<tr>
<td>28,2</td>
<td>Equipment and trained personnel available at all times</td>
<td>Yes</td>
</tr>
<tr>
<td>28,3 + Annex 10 + 30,1</td>
<td>Organization, procedures, immediate reporting, etc.</td>
<td>Yes</td>
</tr>
<tr>
<td>29,1 and 2</td>
<td>Preparation of external emergency response plans</td>
<td>No</td>
</tr>
<tr>
<td>29,5 and 6</td>
<td>Records of equipment and operator exercises</td>
<td>Yes</td>
</tr>
<tr>
<td>30,3</td>
<td>Authorities to collect information during an env. accident</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Issues in relation to implementation of offshore directive:

- Risk assessments to be done according to directive annex I, section 2, no. 5 can be based upon risk assessments of oil spills contained in EIA reports if available and appropriate
- Internal Emergency Response plans will cover all spills incl. spills that comprise a major environmental incident, no specific plans for major spills
- The present Danish operators draw on the same tier 2 and 3 oil spill contingency equipment. Equipment lists in external emergency response plans to reflect this
- Reporting according to offshore directive for major environmental incidents should be coordinated with the reporting requirements for major environmental damage according to the Environmental Liability directive (art. 5, no. 2)
- The requirement on availability of the contingency equipment of the operators in article 28, no. 2 does not imply that the equipment of one operator shall be available for emergency response operation in case of a spill from another operator or in case of spills from other sources e.g. ships
- The directive does not require the member state authorities to have contingency equipment available for the operators
- Guidance on how to carry out analysis of oil spill effectiveness

THANK YOU FOR YOUR ATTENTION!