Contents

1 SUMMARY .................................................................................................................. 4
2 QUALITY AND HSE ............................................................................................... 4
3 GOVERNING BODIES .......................................................................................... 5
  3.1 THE GENERAL MEETING ............................................................................. 5
  3.2 BOARD OF DIRECTORS FOR NOFO ....................................................... 5
4 ORGANISATION ...................................................................................................... 6
  4.1 PROFESSIONAL FORUM .......................................................................... 6
5 FINANCE .................................................................................................................. 6
6 PUTTING NOFO’S STRATEGY INTO OPERATION .............................................. 9
  6.1 COMMUNICATION AND PUBLIC RELATIONS ...................................... 9
7 OIL SPILL RESPONSE ACTIONS ...................................................................... 9
8 OIL SPILL PREPAREDNESS ............................................................................... 9
  8.1 OIL SPILL PREPAREDNESS – WILDCAT DRILLING .................................. 10
  8.2 NOFO’S STANDBY FLEET .......................................................................... 12
  8.3 OPERATIONAL PREPAREDNESS ............................................................. 12
  8.3.1 The oil spill response teams ................................................................. 12
  8.4 COAST AND SHORE .................................................................................. 13
  8.4.1 IUA – intermunicipal committee against acute pollution ............... 13
  8.4.2 IGSA – emergency shoreline task force ............................................ 13
  8.4.3 IGK – emergency response task force coast ................................... 13
  8.4.4 The specialised task force .................................................................. 13
  8.4.5 World Wildlife Fund for Nature (WWF) ........................................... 14
9 REMOTE MEASUREMENT ................................................................................. 14
  9.1 AERIAL SURVEILLANCE ........................................................................... 14
  9.2 SATELLITE SURVEILLANCE ..................................................................... 15
  9.3 RESOURCES FOR LOCAL SURVEILLANCE – AEROSTAT .................. 15
  9.4 MARITIME BROADBAND RADIO (MBR) ............................................... 15
10 DRILLS AND TRAINING ..................................................................................... 16
  10.1 DRILL HALTENBANKEN 2016, WEEKS COMMENCING 12 SEPTEMBER AND 24 OCTOBER .......... 16
  10.2 OIL-ON-WATER ....................................................................................... 16
  10.3 OIL SPILL RESPONSE IN COLD CLIMATES ....................................... 17
  10.4 ICS TRAINING .......................................................................................... 17
  10.5 COLD CLIMATES AND ICE ................................................................. 17
  10.6 COURSES .................................................................................................. 18
11 STATUS OF OIL SPILL RESPONSE EQUIPMENT ........................................... 18
  11.1 BASES AND DEPOTS .............................................................................. 18
  11.2 EQUIPMENT ............................................................................................. 19
  11.3 MAINTENANCE MANAGEMENT AND LOGISTICS .............................. 19
12 TECHNOLOGICAL DEVELOPMENTS .............................................................. 20
  12.1 OIL SPILL RESPONSE 2015 ..................................................................... 20
  12.2 PHASING IN OF DEVELOPED EQUIPMENT/SYSTEMS FROM OIL SPILL RESPONSE 2010 ............. 20
13 AGREEMENTS ...................................................................................................... 20
  13.1 NOFO AGREEMENT AND VESSEL AGREEMENT .................................. 20
  13.2 INTERNATIONAL COOPERATION .......................................................... 21
In 2016, NOFO has once again experienced a high level of activity and completed many assignments.

With its numerous activities and frequent drills and training sessions, NOFO has demonstrated its ability to cover the needs of its members for robust oil spill preparedness on the Norwegian Continental Shelf. NOFO has carried out risk assessments of activities, and there has been a central focus on successful execution of HSE. All activities have been completed with zero injuries to personnel.

One high-priority activity for NOFO in 2016 has been the practical follow-up and implementation of the strategy and action plan adopted by the General Meeting in 2015. The systematics and approach applied by NOFO to the above show great promise with a view to successful and efficient fulfilment of NOFO members’ expectations.

The management at NOFO have sustained their positive efforts within the further development of management systems and the organisation’s capacity for change. The improvements to efficiency and cost-awareness have been very positive.

In 2016, NOFO played an active role in international efforts, both as a representative on the programme committee for the International Oil Spill Conference (IOSC) 2017 and as a member of the Global Response Network (GRN). These roles have helped NOFO strengthen relationships with partners and boost the international reputation of Norwegian oil spill preparedness.

Follow-up, cost control and reporting routines have been successfully maintained throughout the year, in close dialogue with the Board of Directors.

Throughout 2016, NOFO has fulfilled its activity plans and satisfied the expectations of the Board of Directors.

Forus, 23 March 2017
1 SUMMARY
In 2016, NOFO completed all its assignments according to schedule, with zero injuries to personnel and within its financial budgets. The organisation is very well prepared for fulfilling its primary task, which is to develop robust oil spill preparedness on behalf of the operators on the Norwegian Continental Shelf.
NOFO’s tasks, responsibilities and priorities are presented in the strategy adopted for the years 2016-2020. The main purpose of this strategy is:

1. Efficient and robust oil spill preparedness
2. Cooperation
3. Development

2 QUALITY AND HSE
There were no serious incidents in 2016. Sick leave was approximately 4.1%. NOFO facilitates equal opportunities at work. As NOFO operates in a male-dominated industry, women are actively encouraged to apply for relevant vacancies.

NOFO has its main office in Forus and a regional office in Hammerfest. NOFO also has activities at five bases and two depots located along the coast, from Rogaland in the south to Finnmark in the north. All NOFO’s premises comply with prevailing requirements and are suitable for the activities performed at the individual locations.

All vessel-based drills, Oil-On-Water (OOW) and joint drills managed by NOFO were completed according to plan in 2016 and without serious incidents.

NOFO’s internal control system covers management, HSE, quality and operational aspects. The internal control system is an integrated part of NOFO’s workday, and comprises features such as registration of nonconformances, an activity plan, risk assessments, governing documents, document management etc. Internal and external audits have been conducted according to plan. Throughout the year, all the departments at NOFO have carried out continuous improvements to the internal control system.
3 GOVERNING BODIES

3.1 The General Meeting
Two General Meetings were held in 2016.

As of 31 December 2016, NOFO had 24 members, of which 20 are full members. Four companies have registered interest in becoming an associated member if allowed by the General Meeting in January 2017. The decline in the number of members is attributed to both business combinations/acquisitions and the fact that companies without an active portfolio have cancelled their membership of NOFO.

<table>
<thead>
<tr>
<th>Member</th>
<th>Representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eni Norge AS</td>
<td>Erik Bjørnbom</td>
</tr>
<tr>
<td>ConocoPhillips Skandinavia AS</td>
<td>Bjørn Saxvik</td>
</tr>
<tr>
<td>ExxonMobil E&amp;P Norway AS</td>
<td>Dag Heiret</td>
</tr>
<tr>
<td>TOTAL E&amp;P NORGE AS</td>
<td>Trond Bergan</td>
</tr>
<tr>
<td>DEA Norge AS</td>
<td>Øystein Eliassen</td>
</tr>
<tr>
<td>Statoil Petroleum AS</td>
<td>Hermod O. Johansen</td>
</tr>
<tr>
<td>Aker BP ASA</td>
<td>Asbjørn Hide</td>
</tr>
<tr>
<td>Lundin Norway AS</td>
<td>Axel Kelley</td>
</tr>
<tr>
<td>AS Norske Shell</td>
<td>Stig Aune</td>
</tr>
<tr>
<td>VNG Norge (Operations) AS</td>
<td>Rolf Kåre Holmboe</td>
</tr>
<tr>
<td>Wintershall Norge ASA</td>
<td>Randi Morvik</td>
</tr>
<tr>
<td>ENGIE E&amp;P Norge AS</td>
<td>Eva Fagernes</td>
</tr>
<tr>
<td>Suncor Energy Norge AS</td>
<td>Lorey K. Lund</td>
</tr>
<tr>
<td>Centrica Energi</td>
<td>Kathrine Sigmundstad</td>
</tr>
<tr>
<td>Maersk Oil Norway AS</td>
<td>Hans-Henrik Rønnau</td>
</tr>
<tr>
<td>OMV (Norge) AS</td>
<td>Svein Olav Drangeid</td>
</tr>
<tr>
<td>Faroe Petroleum Norge As</td>
<td>Ingvild Anfinsen</td>
</tr>
<tr>
<td>Repsol Expl. Norge AS</td>
<td>Øyvind Hebnes</td>
</tr>
<tr>
<td>Edison Norge AS</td>
<td>Kristin Greig King</td>
</tr>
<tr>
<td>Bayerngas Norge AS</td>
<td>Toralf Kaland</td>
</tr>
</tbody>
</table>

3.2 Board of Directors for NOFO

Six board meetings were held in 2016, five of which were held in NOFO’s offices in Forus and one at the offices of the Norwegian Coastal Administration in Horten.

As of 31 December 2016, the Board of Directors had the following composition:

<table>
<thead>
<tr>
<th>Company</th>
<th>Representative</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statoil Petroleum AS</td>
<td>Astrid Sørensen</td>
<td>Chair</td>
</tr>
<tr>
<td>Centrica Energi</td>
<td>Siri Nesbø</td>
<td>Deputy Chair</td>
</tr>
<tr>
<td>Eni Norge AS</td>
<td>Erik Bjørnbom</td>
<td>Board member</td>
</tr>
<tr>
<td>ConocoPhillips Skandinavia AS</td>
<td>Øystein Lid</td>
<td>Board member</td>
</tr>
<tr>
<td>Lundin Norway AS</td>
<td>Bernt Rudjord</td>
<td>Board member</td>
</tr>
<tr>
<td>Aker BP ASA</td>
<td>Richard Miller</td>
<td>Board member</td>
</tr>
<tr>
<td>Wintershall AS</td>
<td>Janne Lea</td>
<td>Board member</td>
</tr>
</tbody>
</table>
4 ORGANISATION
As of 31 December 2016, NOFO had 34 full-time employees, with a 26% ratio of females. NOFO’s organisational chart is provided below.

4.1 Professional Forum
A resolution was adopted to merge the Professional Forum for Operations and the Professional Forum for Technology into one Professional Forum as from the second half of 2016. The new, merged Forum was established with a new Chair in September 2016. The mandate for the new Forum was adopted at the meeting in December 2016.

Focus subjects for the year:

- NOFO COP (Common Operating Picture) oil spill response
- Merger of the two Forums to one Professional Forum, including a new mandate
- Oil-On-Water 2016
- Strategic investment plan
- Information on the agreement with KSAT (Kongsberg Satellite Services)
- Oil Spill Contingency Planning System” (OSCPs)
- Procurement of new offshore booms
- Procurement of new offshore booms

5 FINANCE
All NOFO’s revenue is generated from its members. In 2016, revenue totalled NOK 308 million, comprising NOK 263 million from membership fees, NOK 5.5 million from registration fees and other revenue of NOK 39.5 million. The financial statements have been closed with a deficit of NOK 34 million and a corresponding reduction in equity.

There is a continuous focus on improvements to efficiency and measures to save costs. All scheduled activities were completed but at lower costs than budgeted.
In 2016, investments totalled NOK 38 million. All investments were financed by NOFO from its own capital.

As of 31 December 2016, NOFO had 20 members, in comparison with 29 members in 2015.

At 31 December 2016, NOFO had loan obligations totalling NOK 157 million. These comprise loans to finance oil spill response equipment and depots. The repayment profile is adapted to suit the estimated technical/economic life of the operating assets.

Activities are financed by membership fees. Financial risk is deemed to be low. The financial statements have been prepared on the assumption of going concern, and provide a fair illustration of activities and profit/loss.

The graphs below provide an illustration of the development in resources, assignments and expenses in relation to the budget for 2007 to 2016. The first graph shows central resources implemented in NOFO's oil spill preparedness. The second graph illustrates the increase in drills/verifications required to ensure that the resources are properly drilled in accordance with schedule, and can fulfil the requirements laid down in the companies’ oil spill response plans. The last graph shows the budget in comparison with the expenses related to procurement and phasing in of new equipment and other oil spill response resources.

---

**Graphs: Development of capacity, barriers 3 and 4**

- Development of capacity, barriers 3 and 4
- Specialised task force

**Graphs: Consolidation of resources, emergency shoreline task force (IGSA) and vessels in the south**

- Tug boats, barriers 1-2
- Vessels, barriers 3-4
- Preparing organisation
- Other agreements for preparedness resources
Increase in the number of Oil Recovery (OR) vessels. Development of preparedness close to shore, focus on the sharp end of emergency preparedness.

Establishment of barriers 3-4, emergency response task force coast (IGK) north 2011, south 2013. Increased activities in the Barents Sea.

Coordination of activities, reduction in major drills.

Increase in the number of Oil Recovery (OR) vessels. Development of preparedness close to shore, focus on the sharp end of emergency preparedness.

Development of capacity, execution.

Consolidation.
6 PUTTING NOFO'S STRATEGY INTO OPERATION
The prevailing strategy for 2016-2020 was adopted by NOFO's General Meeting in October 2015. As a result, the focus in 2016 has been on implementation and operationalisation.

To ensure professional ownership and close follow-up of the strategy, NOFO has chosen to organise the sub-targets as projects. Accordingly, each of the 13 sub-targets has been assigned a Project Manager, responsible for professional follow-up throughout the strategy period (2016-2020). The Project Managers will cooperate with other professionals within NOFO, representing both our members and other partners. This ensures successful collaboration, exchange of experience and the correct focus in relation to the strategy. Follow-up by management is provided for at quarterly status meetings, and by means of six-monthly reports to NOFO's Board of Directors.

6.1 Communication and public relations
Based on the sub-targets adopted as part of the follow-up for the strategy, NOFO set up a communication group in 2016. The group's focus areas are based on the adopted communication plan.

The work on NOFO's communication plan has been carried out in cooperation with the Norwegian Oil and Gas Association. The plan has comprised advertisements, presentations and other external communication.

Two short films were produced in 2016 to provide a brief insight into the activities of NOFO and how NOFO works.

7 OIL SPILL RESPONSE ACTIONS
There were no calls to mobilise NOFO for participation in oil spill response actions in 2016. However, NOFO's standby team was called upon six times in the year to verify status.

8 OIL SPILL PREPAREDNESS
In 2016, NOFO's oil spill preparedness organisation comprised the following standby functions:

- Oil spill branch director
- Logistics
- Operations
- Planning and the environment
- Offshore Recovery Supervisor
- Shoreline Division Supervisor

An Incident Command System (ICS) has been implemented in NOFO's oil spill preparedness organisation. To further develop ICS, NOFO's oil spill preparedness organisation carried out measures in 2016 to increase competencies in close cooperation with several operators.

A number of activities have been carried out at home and abroad to help meet the challenges faced in the northern regions. The cooperation with the Norwegian Coastal Administration and contributions to the Norway–Russia treaty have been important milestones for NOFO.

In cooperation with a working group made up of different operators, NOFO has started work on revitalising the planning work within NOFO. This will be a focus area going forward, and will help ensure more efficient oil spill preparedness for NOFO's members.
Once-daily satellite services providing detection of all productive fields on the Norwegian Continental Shelf started up on 1 October 2016. The purpose of the agreement is to ensure detection and early notification of acute oil spills.

8.1 **Oil spill preparedness – wildcat drilling**

In 2016, preparedness was developed for 26 oil spill response plans related to exploration wells, compared with 46 in 2015. Four of these plans required provisional mobilisation of oil spill preparedness resources to achieve the response times, compared with six wells in 2015.

The figures below illustrate the development in preparedness for wildcat drilling for the period from 2011 to 2016, and related provisional mobilisation of OR vessels.
Six oil spill response plans were verified in 2016 (see map extract below) compared with 20 the year before. Five of these involved exploration prospects, and the sixth involved a field soon to start production.
8.2 NOFO's standby fleet

In 2016, NOFO's standby fleet comprised 27 OR vessels, made up of deployable vessels and vessels on permanent standby. The crew is well-trained and drilled in accordance with the programme.

At 31 December 2016, the fleet comprised 16 deployable vessels and 11 vessels on permanent standby.

8.3 Operational preparedness

NOFO has a standby system with 10 persons on standby and with the capacity to respond within one hour. The standby functions are manned by NOFO employees and employees in the operating companies.

8.3.1 The oil spill response teams

NOFO's oil spill response teams comprise approximately 60 persons, recruited both from NOFO's own organisation and from NOFO's members. The oil spill response teams are made up of Oil spill branch director, personnel with expertise within logistics, operations, planning and the environment, in addition to task force management for offshore operations. The organisation is flexible and can be upscaled or downscaled in relation to the complexity and size of an action.
Each standby team conducts drills every six weeks and takes part in full-scale drills and verifications. Each of the groups has also carried out individual meetings.

8.4 Coast and shore
Operation of the depots in Hasvik and Havøysund is organised with depot managers and a standby team made up of eight persons in each location. The personnel are on 24-hour standby, with one week on and three weeks off. The standby team is responsible for mobilisation and maintenance of all oil spill response equipment. The personnel in the standby teams have also taken part in drills to make sure they have the required knowledge of mobilisation and use of the equipment.

8.4.1 IUA – intermunicipal committee against acute pollution
To ensure documentable access to personnel and equipment for actions in the beach cleaning operations, NOFO has signed an agreement with 21 IUAs along the coast, from Vest-Agder in the south to Finnmark in the north. Oil spill response drills have been conducted in cooperation with four IUAs in 2016.

8.4.2 IGSA – emergency shoreline task force
With a view to improving contact and control of the IGSA team, NOFO took over responsibility for mobilisation, training and operation of the IGSA team with effect from 1 January 2016. Prior to this, operations were managed by a third party. Significant improvements and upgrades have been made to personal protective equipment and other equipment for the IGSA team in 2016. At 31 December 2016, the IGSA team was made up of 39 persons.

A total of six drills were held involving the IGSA. The focus area in all six drills was cooperation with other elements involved in oil spill preparedness, in particular cooperation with the shoreline preparedness fleet (IGK or emergency response task force coast – fishing boats for emergency response along the coast). Drills have also been conducted in cooperation with personnel from the specialised task force in two of the drills: one in the week starting 18 April from the depot in Hasvik, with Ingøya island as the area for the drill; and one in the week starting 30 May from Havøysund with Gjesvær as the area for the drill.
In the weeks starting 17 and 31 October, drills were held involving resources from both depots, mobilised simultaneously and in cooperation with the IGK, IGSA and specialised task force.

8.4.3 IGK – emergency response task force coast
IGK Finnmark
As of 31 December 2016, the IGK fleet in Finnmark had 21 fishing vessels. These vessels have been recruited from the municipalities of Hasvik, Hammerfest, Måsøy and Nordkapp. The number of vessels needs to be higher, and NOFO has therefore inspected six new fishing vessels that can be incorporated into the IGK fleet in 2017.

The IGK conducted 11 drills with varying objectives and a special focus on drills in icy conditions and low temperatures, also in cooperation with the IGSA.

IGK South
As of 31 December 2016, the IGK South fleet had 26 fishing vessels. The vessels are located from Lofoten in the north to Måløy in the south. All vessels took part in drills in 2016. The drills were completed without injury to personnel or damage to the environment or equipment.

8.4.4 The specialised task force
The specialised task force is made up of 61 persons as of 31 December 2016. The members of the specialised task force shall provide assistance in shoreline actions, and have functions such as staff consultant, on-scene commander and field commander.

The specialised task force did not have any special meetings in 2016. The focus was rather on training/improving competencies in the form of courses and drills.

In April 2016, 13 persons from the specialised task force took part in a major coordinated drill with the IGSA on the island of Ingøya in Finnmark. During the drill, they received training in NOFO COP Oil spill response, using the StrandApp shoreline app. StrandApp is a tool developed in cooperation with the Norwegian Coastal Administration. It is used to chart status, register conditions and provide documentation with images in relevant areas. Registration is carried out using a tablet out on the field. Registered data is directly uploaded to NOFO’s map systems.

The specialised task force was also involved in the Haltenbanken drill in the week commencing 12 September 2016, supporting the IUAs from Salten, Rana and Ofoten in the shoreline operations for which they were responsible.

In the week commencing 26 September 2016, the specialised task force assisted the Norwegian Coastal Administration during their drill on Spitsbergen.

In addition, individual groups also took part in other activities throughout the year, including:

- Training in their new role as part of the IUA staff
- Participating in courses held by NBSK (Norwegian Fire Protection Training Institute) that are of relevance to their roles
- Training programme with participation in NOFO’s standby team drills

8.4.5 World Wildlife Fund for Nature (WWF)

In May 2016, NOFO signed a new agreement involving training of voluntary members of WWF’s “Clean Coast” programme. The agreement includes provisions covering courses, drills/training, action and standby schemes for mobilisation of volunteers from WWF Clean Coast for beach-cleaning operations for NOFO.

A basic course in oil spill response was held for 20 new volunteers in 2016. WWF Clean Coast has at any given time minimum 500 volunteers.

9 REMOTE MEASUREMENT

NOFO has access to several sources to detect oil spills. Satellite is used as the primary source of detection to identify a possible oil spill. Aerial surveillance is used as the secondary source of detection.

Satellite and aerial surveillance are also used operationally. Together with access to the oil spill drift model and environmental studies, this provides the fundamental data for detection of oil spills, and NOFO’s operational concepts.

9.1 Aerial surveillance

Since 2011, NOFO has had a cooperation agreement with the Norwegian Coastal Administration and the Norwegian Coast Guard on the use of aerial surveillance. This service is provided by two aircraft, LN-KYV and LN-TRG, which are owned and operated by Sundt Air. The aircraft have the same technical equipment. In addition to routine assignments, the aircraft are also available for actions.

In 2016, NOFO had 67 exclusive flying hours, including 30 hours in connection with oil spill response drills.
As well as surveillance, the aircraft are used for:

- Testing Maritime Broadband Radio (MBR)
- Spotting for dispersal planes (OSRL)
- Ice surveillance
- Operational support for task force leader offshore (ILS)

9.2 Satellite surveillance
In 2005, as an element in detecting oil spills, NOFO signed an agreement with Kongsberg Satelittjeneste (KSAT) covering all fields with a frequency of approx. 1.5 per week. With effect from 1 October 2016, the frequency of this service was increased substantially to cover all fields once a day. The purpose of the agreement is to ensure detection and early notification of acute oil spills. In the event of detection, NOFO notifies the operator.

At the request of the operators on the Norwegian Continental Shelf, the Norwegian Environment Agency has consented to the use of satellites as the primary source of detection of any oil spills from petroleum activities on the Norwegian Continental Shelf.

9.3 Resources for local surveillance – Aerostat
The aerostat is equipped with different types of cameras and transmitters, and is used for static surveillance of relevant areas. From an operational point of view, the aerostat plays an important role, allowing the task force leader to view the extent of oil slicks and areas in the oil slicks that indicate “combatable oil”.

In 2016, the aerostat has been used as a tool for remote measurement during 19 drills; five times in connection with OR vessel drills and 14 times in connection with IGK/IGSA drills.

9.4 Maritime Broadband Radio (MBR)
MBR is a digital broadband system that allows all participating units in an oil spill response action to share images, video, audio, polygons for measuring the volume of oil etc. This provides a shared “Common Operational Picture” (COP). The digital broadband can be compared to a modem. Anything that can be sent via the Internet can also be sent via radio at a maximum transfer rate of 16 Mbits/s.
In 2016, MBR was installed onboard all vessels on permanent standby. During the year, successful tests were conducted on the use of MBR for communication with surveillance aircraft and the Norwegian Coastal Administration's vessels. Both quality and range have seen significant improvements compared with former communication systems.

On 29 November 2016, NOFO carried out a joint drill together with OSRL and their dispersal aircraft (Boeing 727). The Norwegian surveillance aircraft (LN-KYV) operated as the spotter/guide for the dispersal aircraft. LN-KYV sent live streaming from the MBR onboard to a portable MBR installed by NOFO at its main offices in Forus.

10 DRILLS AND TRAINING

In 2016, NOFO carried out 78 drills, according to schedule. These included standard vessel drills, full-scale drills and shoreline drills, including drills in Arctic environments/icy waters.

Two major joint drills were conducted in 2016:

- Week commencing 12 September: Drill, Haltenbanken 2016 together with Statoil
- The week commencing 24 October: Drill, Haltenbanken with Statoil and ConocoPhillips ICS

Other drills conducted in 2016 included shoreline drills, pilot courses in oil spill response in ice and low temperatures at the Norwegian Fire Protection Training Institute, and training courses provided by foreign partners. Several R&D projects target problems related to ice and low temperatures, and tactics for handling emulsions in and close to ice have been audited and further developed. One offshore drill in the waters between Spitsbergen and Bear Island was cancelled as there was not enough ice in the area.

10.1 Drill Haltenbanken 2016, weeks commencing 12 September and 24 October

The drill in September was carried out in cooperation with Statoil. The participants covered a wide range of organisations, comprising several of NOFO's partners within oil spill preparedness: IUA Rana, IUA Salten, IUA Ofoten, the Norwegian Coastal Administration, the IGK, the specialised task force etc. The drill laid the foundations for the following drill in late October, with Statoil and ConocoPhillips as participating companies.

The drill covered a large geographical area and involved numerous resources. The main focus was on training Statoil's ability to establish and carry out an oil spill response action in cooperation with internal and external units, with an emphasis on learning and mastering skills. The drill comprised mobilisation of the IUA, the specialised task force, IGK, field-based resources, staff and practical field work.

The main aim of the drill in the week commencing 24 October was to practise providing assistance from several organisations to Statoil's second-line organisation, using ICS as the method of organisation. During the drill, NOFO and ConocoPhillips manned the ICS positions together with Statoil, at Statoil's offices in Sandsli, Bergen.

The method of organising this type of joint drill was successful and, in total, enhances oil spill preparedness.

10.2 Oil-On-Water

Oil-On-Water is carried out to verify new oil spill response technology and equipment in realistic conditions. Oil-On-Water is a cooperative project with the Norwegian Coastal Administration and was conducted at the Frigg field in the period from 13 to 16 June, in accordance with the requirements of the Norwegian Environment Agency.

The project was completed without injury to personnel or damage to the environment and equipment, and within budget.
The plan was to carry out the following trials:

- Thin oil films, mechanical dispersal
- Burning and use of hardening agents (ISB)
- Quantitative testing of Desmi speed sweep
- All Maritim, integrated pump system CB6
- Remote measurement

In addition, remote measurement trials were carried out using drones.

Eight vessels took part in the drill along with aircraft from international partners from Norway, the Netherlands and Finland.

All scheduled trials were completed except for the trial using the CB6 with integrated pump system. The trial involving the speed sweep showed that conventional booms can be towed at double the speed through water without significant loss of oil. All the ISB spills were burned in situ, both those where a hardening agent had been used to concentrate the spills and those where it had not. Samples of the plume of smoke were taken, along with other samples to study exposure of task force personnel to vaporised crude oil.

10.3 Oil spill response in cold climates
The work to develop and obtain experience of working with oil and ice was carried out in the form of three drills in the Porsangerfjord. A fourth drill had been planned in the Barents Sea in icy waters, as a cooperative project between NOFO and BaSEC (The Barents Sea Exploration Collaboration). This had to be cancelled/omitted, as there was not enough ice in the area. The drills and project will continue in 2017.

10.4 ICS training
During 2016, all NOFO’s oil spill response teams have been offered an ICS basic course, 100, 200, 300 in addition to training and drills. NOFO as an organisation has taken part in several drills involving training at different levels. NOFO employees have taken part in “train the trainer” courses within ICS. NOFO has also taken part in drills conducted by several companies including Statoil – NOFO’s most important partner in terms of development of competencies.

10.5 Cold climates and ice
In 2016, NOFO has completed pilot courses in oil spill response in ice and low temperatures at the Norwegian Fire Protection Training Institute and training courses provided by foreign partners. Several R&D projects target problems related to ice and low temperatures, and tactics for handling emulsions in and close to ice have been audited and further developed.
10.6 Courses
There has been a significant decline in demand for all types of courses organised by NOFO, and the course portfolio is being adapted to demand. NOFO had 195 course participants in 2016, compared with 295 in 2015. All NOFO’s courses comply with the Curriculum for training in the management of acute pollution.

In 2016, NOFO implemented a course-booking system developed inhouse and based on “sharepoint”, as used in other activities and systems at NOFO.

The Norwegian Fire Protection Training Institute at Fjelldal conducted 15 NOFO courses, with around 240 participants.

Each course is assessed, and the feedback has been overwhelmingly positive. For more information, please see the table below.

Grades per course

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOFO Oil spill response course</td>
<td>4.8</td>
</tr>
<tr>
<td>NOFO Oil spill response course</td>
<td>4.9</td>
</tr>
<tr>
<td>NOFO dispersal course</td>
<td>5.1</td>
</tr>
<tr>
<td>NOFO remote measurement course</td>
<td>5.3</td>
</tr>
<tr>
<td>Course for task force leader offshore (ILS)</td>
<td>4.9</td>
</tr>
<tr>
<td>Meteorology course</td>
<td>4.7</td>
</tr>
<tr>
<td>Gathering for task force leader offshore (ILS)</td>
<td>4.4</td>
</tr>
</tbody>
</table>

11 STATUS OF OIL SPILL RESPONSE EQUIPMENT

11.1 Bases and depots
NOFO’s oil spill response equipment is stored in five bases along the coast and in two depots in Finnmark.

NOFO has agreements with third parties and hires in personnel at the bases and depots for inspection, maintenance, mobilisation, participation in drills and standby. Function tests and maintenance of the oil spill response equipment have been conducted according to plan.
An agreement has been signed with the base in Tananger to extend the storage area to protect the equipment under development, which will be gradually phased in to NOFO’s oil spill preparedness.

11.2 Equipment
Technical reviews have been carried out of the oil booms, skimmers and oil recovery equipment in barriers 1 and 2 to establish the technical condition of the equipment. These reviews concluded that several of the booms were worn, had a short residual lifetime and should be replaced. Based on the strategic approach in the principles of the SIP (Strategic Investment Plan), it is evident that several of the booms require replacement.

The General Meeting in February 2016 therefore decided to replace six booms. Work on the request for tenders started immediately and by the end of November, six booms had been ordered for delivery in the first half of 2017.

During the year, four oil spill recovery systems (TransRec) were upgraded and overhauled by the supplier. Work on the fifth system has started and is scheduled for completion in 2017.

In accordance with a former resolution, one MOS Sweeper was procured and delivered in the first half of 2016, and taken into operation in the autumn of 2016. The Sweeper will be an integral part of NOFO’s oil spill preparedness equipment and system, and will be the first offshore, single-boat system. One Desmi speed sweep was also procured, and NOFO has initiated procurement of a further two ring booms to replace the scrapped booms that could no longer be repaired.

NOFO has also procured 16 Seatex Maritime Broadband Radios (MBR) in 2016.

11.3 Maintenance management and logistics
NOFO has developed and implemented a new management system to improve its management of maintenance for oil spill response equipment. This has been integrated into NOFO’s other management systems and has been developed to incorporate important logistics functions in addition to the status of equipment and maintenance status. It ensures efficient utilisation of resources, and is a vital element in the foundations for NOFO’s work on the SIP (Strategic Investment Plan). As such, NOFO has improved its capacity to predict the requirement for replacements, new procurements and/or upgrades.
12  TECHNOLOGICAL DEVELOPMENTS
Under the Oil Spill Response 2015 programme, the main focus in the work on technological
developments has been on phasing in new equipment. Moreover, technology and methods related to
In Situ Burning have been tested during the Oil-On-Water trials, providing NOFO with important
information in relation to the further development of this method of combating oil spills.

12.1  Oil Spill Response 2015
The Oil Spill Response 2015 technological programme is a cooperative project between the
Norwegian Coastal Administration and NOFO. More than 100 proposals were submitted to the
programme, and these have resulted in 19 new agreements being signed.

A number of the resulting projects have now been completed, involving the development of oil spill
response equipment that provides a higher level of performance during operations in cold climates.
Examples of these are the adaptations to Aerostat for operations during the winter, and the further
development of FoxTail for use in Arctic conditions. A method has also been developed for charting
operating conditions in areas with sea ice.

Equipment and methods developed under the Oil Spill Response 2015 programme are assessed
continuously for integration into NOFO’s operational oil spill preparedness.

12.2  Phasing in of developed equipment/systems from Oil Spill Response 2010
The Desmi speed sweeps and MOS Sweeper were initially projects under the Oil Spill Response 2010
programme, and have both been phased in to NOFO’s oil spill preparedness in 2016.

The Desmi speed sweeps are used together with traditional booms, allowing for booms in a J-shape to
be towed at double the speed through the water without losing any oil emulsion.

The MOS Sweeper is a boom system that can be towed quickly through the water, channelling the oil
by means of several shallow deflectors that lead the oil to the pump at the rear of the system.

BV spray is a dispersal system where a hose with nozzles is pulled behind a vessel with a paravane
and has a sweep radius of approximately 50 metres. BV spray is a product of the Oil Spill Response
2010 programme. Implementation of this system into NOFO’s oil spill preparedness is expected in
2017.

13  AGREEMENTS
NOFO signs agreements with a large number of different parties to ensure sufficient resources and to
maintain an expert oil spill response team. The agreements cover a wide range from individual
resources to major private and public partners. NOFO’s partners are not only national and regional
organisations, but also local companies. NOFO has implemented a new and efficient system for
agreement management as a key element in maintaining an overview of all agreements and
milestones.

13.1  NOFO agreement and vessel agreement
The NOFO agreement and articles of association govern cooperation and areas of responsibility
between NOFO and the operating companies. Experience has shown that the NOFO agreement
functions as intended. The most recent version of the NOFO agreement and articles of association
were unanimously adopted at NOFO’s General Meeting in February 2014.
Members have queried whether it is possible to offer associated membership of NOFO. In accordance with the resolution adopted by the General Meeting in February 2016, a working group has been set up to study this. Their recommendation will be submitted in the first quarter of 2017.

The vessel agreement was assessed in 2016, and the conclusion was that this agreement functions as intended. NOFO’s members provide assistance with OR vessels that satisfy the requirements laid down in the agreement.

13.2 International cooperation
The strategy for 2016-2020 stipulates that NOFO shall take part in international cooperation projects. This has been organised by means of NOFO’s participation in several meetings of the Global Response Network (GRN) and its associated Operational Teams (OT). Six different OTs have been formed within the following areas: offshore, dispersal, burning, coast and shoreline actions, ice and remote measurements. NOFO participates in all OTs and has been assigned the role of leader of the OT for remote measurements.

In November 2016, an oil spill response conference was held in Tampa, Florida. During this conference, a managerial meeting of the GRN was organised, at which NOFO was elected to take over leadership of the GRN, with effect from July 2017.

Furthermore, bilateral meetings have been held at management level with the Marine Spill Response Corporation (MSRC in the USA) and Oil Spill Response Limited (OSRL) in the UK. In 2016, NOFO also increased its cooperation with East Canada Response Corporation (ESRC) at executive officer level.

During the year, NOFO has participated in the programme committee for the International Oil Spill Conference (IOSC) for 2017 and the underlying group for technical demonstrations.

In the autumn of 2016, a meeting was held between the Norwegian and Russian authorities in Murmansk. The purpose of the meeting was to attempt to clarify border problems in connection with oil spills and oil spill response actions. Russian authorities attended the meeting together with NOFO and two operating companies, invited by the Norwegian Coastal Administration.

* * * * * * *

Forus, 23 March 2017

Astrid Sørensen (Chair)
Statoil Petroleum AS

Siri Nesbø (Deputy Chair)
Centrica Energi AS
Janne Lea (Board member)  
Wintershall

Øystein Lid (Board member)  
ConocoPhillips Norge

Richard Miller (Board member)  
Aker BP Norge AS

Bernt Rudjord (Board member)  
Lundin Norway AS

Erik Bjørnbom (Board member)  
Eni Norge AS

Leif J. Kvamme (CEO)  
NOFO