

SUMMARY REPORT AND RECOMMENDATIONS ON THE PREVENTION OF MARINE OIL POLLUTION IN THE ARCTIC

CONTEXT

As Northern waters become increasingly accessible as a result of a warming climate, offshore oil and gas operations, maritime shipping and tourism are all expected to increase over the coming years. The Arctic environment however presents a set of spill response and recovery challenges which are not commonly seen elsewhere in the world. These challenges include harsh weather, remoteness, insufficient infrastructure to support a response, cold temperatures that reduce the effectiveness of equipment, and the presence of ice in some areas for much of the year. Thus, effective spill prevention practices are viewed as critical to ensure the protection of the Arctic marine environment from oil pollution incidents.

Arctic Council (AC) Ministers have recognized these challenges as well as the benefits of state collaboration on oil pollution prevention. In the 2011 Nuuk Declaration, Arctic Council Ministers tasked the Emergency Prevention, Preparedness and Response (EPPR) Working Group with developing recommendations and/or best practices in the prevention of marine oil pollution. In the same Declaration, Ministers decided to “establish a Task Force, reporting to the Senior Arctic Officials, to develop an international instrument on Arctic marine oil pollution preparedness and response.” The goal of the Recommended Practices in the Prevention of Arctic Marine Oil Pollution (RP3) project was to gather and analyze current oil spill prevention practices as well as Arctic regulations, standards, guidelines and programs, and to recommend appropriate practices that would take the Arctic challenges into consideration.

METHODOLOGY AND ASSOCIATED WORK PROCESS

A scoping workshop was held in Oslo, Norway in October 2011 with Arctic government representatives, AC Permanent Participants and Observers, and representatives from the oil and gas industry. The workshop concluded that the largest risk of an oil spill in the Arctic stems from **increased activities related to shipping and maritime operations, offshore oil and gas development, and some land-based industry.**

With guidance and input from EPPR member states, the RP3 technical report was developed by the international consultancy Det Norske Veritas (DNV) in consultation with other Arctic Council working groups, Permanent Participants, Observers, and relevant stakeholders. Input was also sought through individual interviews with key technical experts, Health, Safety, and Environment regulators, monitoring and surveillance bodies, industry associations, and Classification Societies and through a subsequent workshop held in Keflavik, Iceland in June

2012. Contributions from such an expansive and diverse list of experts ensured that all aspects of oil spill prevention were taken into account.

The report also compiles relevant national and international laws and regulations, as well as industry standards, required management practices, and guidelines aimed at preventing accidental or episodic release of oil which could impact the marine environment. Key lessons from past incidents and findings from subsequent regulatory reviews are also important factors that were considered.

TECHNICAL REPORT FINDINGS

Operational experience in the extreme Arctic is limited, but relevant experience from shipping and maritime operations, offshore oil and gas activities, and land-based industry in the southern areas of the Arctic have been collected and evaluated. Important, relevant knowledge has also been gained from experiences elsewhere in the world, such as various shipping incidents, as well as the Montara and Macondo well blowouts, and the Piper Alpha and Ocean Ranger incidents. These occurrences have demonstrated the importance of proper management systems and strong safety culture which become even more challenging and necessary in Arctic conditions.

Risks

In order to accurately identify prevention practices, the RP3 report first identified hazards, risks, existing safeguards, barriers and risk-reducing measures related to operations in the Arctic. The harsh climate, sea ice, icebergs and hydrology make offshore petroleum activities and the consequences of an accident – in terms of loss of lives, environmental damage and/or economical loss – even more severe due to the remoteness and lack of infrastructure. Darkness, fog, strong winds, and sea ice make emergency response challenging and time consuming. Icing on decks and superstructures due to sea spray can significantly modify the buoyancy and stability of the floating structure. Ice and snow blocking vents and drains, and icing of equipment on deck may cause operational problems. Extreme temperatures may be hazardous for personnel as well as operations, since low temperatures influence the construction materials and may cause vital systems to freeze. The impact and consequence of an oil spill incident will also depend on the location and type of spill.

Prevention

Reducing the probability of an oil spill is essential to achieving a high level of safety in Arctic marine and petroleum operations, in addition to maintaining preparedness and response plans. This can be accomplished by introducing barriers and risk-reducing measures to prevent

dangerous incidents, particularly accidental oil spills. A variety of operational procedures, both active and passive, can be used to decrease the frequency and the magnitude of harmful occurrences. The success of implementing barriers may be difficult to predict, and therefore past experience is vital in determining which barriers are effective and should be further evaluated and implemented. However as incidents occur very infrequently, especially in the Arctic, it may take considerable time to gather statistically-relevant data.

The survey conducted with industry operators and regulatory authorities yielded some important findings which should be considered for activities in the Arctic. Some key points from the survey are found below:

Health, Safety and Environment (HSE) Systems: A well-integrated HSE system adapted to Arctic conditions will lead to safer operations. A strong safety culture, characterized by healthy attitudes towards reducing risk and preventing accidents at all levels in the organization was highlighted.

Common International Standards: There seems to be a lack of consistency between standards and national requirements, as well as inconsistent enforcement of rules and regulations among Arctic nations. A combination of prescriptive and functional (goal-based) requirements was identified as the optimum solution.

Monitoring: An improvement in monitoring methods and technology (i.e. satellites, Unmanned Aerial Vehicles (UAV), subsurface vehicles) would provide more accurate data on weather and ice conditions, detect accidents and spill incidents, and deter illegal actions.

Risk analysis: Identifying hazards, conducting a risk analysis of the specific operation, and implementing risk-mitigating measures was identified as a key action in preventing oil spills.

Technology Development and Best Practice Sharing: Operators would benefit from easy access to information regarding previous experience, best available technologies, best practices, etc. Sharing results of Research and Development projects was noted as a way to improve the efficiency of future Arctic-specific operations.

Oil and Gas Facilities: Oil and gas facilities and associated equipment should be adequately winterized, certified for operations in sub-freezing temperatures and potential interaction with sea ice, and should incorporate leak detection and in-line inspection systems for pipelines.

Qualified personnel and continuous improvement of skills: Lack of competence and a need for robust Arctic-specific training requirements were identified to ensure the ability to work in remote areas as well as the continuous improvement of skills.

ON-GOING ARCTIC COUNCIL AND INTERNATIONAL WORK ON OIL SPILL PREVENTION

Through international fora as well as the six working groups of the Arctic Council, a number of on-going activities and initiatives related to the management of the Arctic marine environment are being undertaken which address some of the key findings in the technical report.

The Protection of the Arctic Marine Environment (PAME) Working Group is developing a report on Health, Safety and Environment (HSE) Management Systems with guidance or recommendations to address areas or elements in need of improvement. This includes HSE Management Systems, safety culture, hazard and risk analysis, Arctic training and competence, sharing of information and best practices, and reporting of leading safety indicators. In addition, PAME has developed a report that describes the use and carriage of Heavy Fuel Oil (HFO) by vessels in the Arctic, identifies the risks and potential effects on the Arctic marine and coastal environment from spills of HFO from ships, as well as existing risk mitigation strategies and international regulations to reduce these risks.

The Arctic Monitoring and Assessment Programme (AMAP) UAS (Unmanned Aircraft Systems) Expert Group has evaluated the scientific use and operation of UAS within the Arctic area, and is working to demonstrate the use of UAS in cross-jurisdictional environmental monitoring.

Within the International Maritime Organization (IMO), the most important regulations for preventing pollution by oil from ships are contained in Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL), The International Convention for the Safety of Life at Sea (SOLAS), 1974 also includes special requirements for tankers. IMO is currently developing a draft International code of safety for ships operating in polar waters (Polar Code), which would cover the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters surrounding the two poles.

In 2011, IMO adopted Guidelines for ships operating in Polar waters. In addition, it created a Manual on Oil Pollution which provides useful information to assist Governments in taking appropriate measure to prevent or minimize operational and accidental pollution from ships.

RECOMMENDATIONS

Based on the information and findings in the RP3 technical report, the EPPR working group has identified the following recommended prevention initiatives that would contribute to safer operations and increase knowledge of Arctic-specific risks and possible mitigation measures.

1. Hazardous ice detection, forecasting and monitoring

In order to improve the detection and forecasting of hazardous sea ice in areas of offshore oil and gas operations and shipping, it is recommended that Arctic Council states cooperate to improve the hazardous ice detection and monitoring programs for Arctic waters. This includes satellite services, and the production and dissemination of ice maps in real time. It is also recommended that the Arctic Council expand the investigation into the use of Unmanned Aerial Vehicles (UAV) in the Arctic to include monitoring ice conditions in major Arctic shipping lanes and providing operational support for oil spill response.

2. Standards for Arctic oil and gas activities

International standards bring social and economic benefits by fostering the harmonization of specifications and practices. Standards are relevant to Arctic operations as the Arctic Council jurisdictions share similar operating environments. It is recommended that the Arctic Council catalog all applicable oil and gas standards for Arctic activities (e.g.: facilities, ice management, escape route and drills, training, logistics, security) and highlight differences in the standards. This will provide states an opportunity to learn from practices in other jurisdictions and possibly apply them in their own region.

3. Circumpolar marine environment risk assessment

It is recommended that the Arctic Council inventory existing risk assessments in the Arctic, identify common elements and environmental differences, as well as methodologies for undertaking these activities, and conduct a circumpolar marine environment risk assessment, if appropriate, in order to better link the sensitivities of the Arctic marine environment with scientific calculations on risks caused by shipping and offshore oil and gas activities in the Arctic Ocean both presently and in the future.

4. Facilitate oil spill prevention research and regulatory cooperation

It is recommended that the Arctic Council establish a mechanism whereby regulators are able to share information on best practices, processes, regulatory approaches as well as compliance and operational information (e.g. near-miss data). Analysis of identified trends can be undertaken and various data collection done in an effort to identify Arctic-specific prevention practices while fostering circumpolar collaboration through the pooling of resources. The initial results of this initiative could include the creation of a joint database and regular meetings of regulators. Over time, it has the potential to develop into an Arctic Oil Pollution Prevention Centre of Excellence.

5. Ensure appropriate infrastructure is in place for emerging Arctic shipping lanes

To ensure safe development and mapping of emerging Arctic shipping lanes in order to prevent oil pollution incidents, it is recommended that the Arctic Council conduct an analysis of existing and emerging shipping lanes, identify gaps in infrastructure and mapping, and work towards enhancing the safety of Arctic shipping lanes.