Risk assessment and response planning are crucial for understanding and mitigating the possibility and impact of oil spills. While it may not be possible to fully remove risk in oil and gas operations, advanced planning can significantly reduce the impact of oil spills on people, operations and the environment.

Drawing on decades of experience, DNV GL’s teams of experts work with operators to identify hazards in order to prevent accidents, to prepare and test effective emergency response plans, and to minimise the impact of possible incident scenarios.

Major oil spill disasters, such as at Macondo in the Gulf of Mexico in 2010 and Montara offshore western Australia in 2009, have justifiably placed the spotlight once again on the importance of effective oil spill risk assessment and response planning. In the aftermath of such high profile incidents, the industry has had to come to terms with greater public scrutiny, more stringent regulations and also an increased focus on the environmental impact of oil spills of all sizes.

In addition, operators have come to fully understand the importance of oil spill risk assessment and contingency planning to their businesses and corporate reputations.

Health, safety and environment (HSE) management has jumped up the agenda of the oil and gas sector in the last decade, as a result of changes to internal priorities, greater environmental awareness, and the increased liabilities and cost implications of major leaks and blowouts.

In today’s risk- and budget-focused climate, operators need a trusted and experienced partner that can guide them through the oil spill risk assessment process and help them to establish robust and sustainable practices for their businesses today and in the future.

In-depth technical expertise

DNV GL is an industry leader in oil spill risk management advisory and response planning. We work with operators across the world to enable them to fully assess their level of environmental risk, to mitigate that risk where possible, and to model and test response solutions and plans, in order to meet both internal and external requirements and standards.

This includes undertaking oil spill risk assessments, preparing contingency analyses and response plans, advising on leak detection technologies and systems, and providing oil spill training and exercises. We also enable customers to verify preparedness and response plans in line with local regulations, the IOGP/IPIECA guideline on oil spill response and the EU directive on environmental liability, as well as a company’s own internal standards and processes.

We have been active in this area for more than 20 years, helping to develop industry best practice on the Norwegian Continental Shelf and elsewhere in the world.

Understanding environmental risk

We believe that early site-specific planning is key if operators are to fully understand and manage oil spill risk, and to respond quickly and efficiently should an incident occur. There is no one-size-fits-all solution to oil spill preparedness. Instead, location, weather conditions, asset design, oil type and equipment all need to be individually assessed in order to build a full picture of oil spill risk and the likely socio-economic and ecological consequence of a blowout or spill.

DNV GL’s team of specialists applies a structured approach to risk-based analysis, providing operators with an overview of a project’s risk profile, as well as measures that can be applied in order to bring the risk level as low as reasonably practicable (ALARP).
Guided by our methodology, our experts apply their in-depth knowledge of industry guidelines and national regulations, and their understanding of each customer’s own internal procedures, to create a detailed risk picture. This enables operators not only to assess all possible risk scenarios, but also to distinguish which ones they should act on – and how.

Our sensitivity mapping, consequence assessment and state-of-the-art environmental modelling tools further inform the decision-making process; for example, by helping operators to select between concepts or sites based on a thorough comparison of the relative risks.

DNV GL has been at the forefront of risk methodology development in this area for decades, and we are constantly reviewing and updating our practices. We understand that each company has its own level of risk acceptance, and our experience and proven track record provides customers with reassurance that they are approaching oil spill risk assessment, leak detection and response planning in a proactive and effective way.

DEVELOPING INDUSTRY BEST PRACTICE

In the wake of the Macomdo and Montara incidents, the International Association of Oil & Gas Producers (IOGP) and IPIECA initiated a joint industry project to address 19 recommendations for improved oil spill response. As part of the project, DNV GL participated in the development of a new guideline for ‘Oil spill risk assessment and response planning for offshore installations’. The guideline is an important tool for understanding the oil spill risk assessment context, including setting criteria and standards for:

- Establishing risk tolerance criteria
- Identifying and mitigating hazards
- Undertaking likelihood and consequence analyses
- Evaluating environmental sensitivity
- Assessing ecological consequences; and
- Creating a tiered approach to oil spill preparedness and response.

It can be downloaded at http://oilspillresponseproject.org.

TECHNICAL KNOWLEDGE TO MEET TOMORROW’S CHALLENGES

As operators expand into new geographies and territories, they are facing increasingly complex technical, logistical and operational challenges. Nowhere is this more the case than in environmentally sensitive areas, such as the Arctic. New knowledge and technologies will be necessary if we are to fully realise the potential of this important geography safely and effectively, and with minimal environmental impact.

DNV GL has been at the forefront of research and development into oil spill risk assessment and planning in environmentally sensitive areas, such as the Arctic regions.

We understand that our customers will need our support as they venture into these unchartered territories. That is why we have invested in processes and tools for analysing existing and future operational constraints and challenges, enabling us to better understand both the risks and operators’ development needs.

We monitor and test current best practice for oil spill preparedness and response planning in the Arctic regions in cooperation with our customers, so that we can identify and start to minimise gaps, and address technical limitations for the benefit of the entire industry.

Operating in cold climate environments

As operators head further north, they must overcome the challenges to their operations, processes and equipment at colder temperatures, including ice and fog, reduced daylight hours and site remoteness.

With less data and experience at the industry’s fingertips, both the risk level and public concern understandably grows. Advance planning will be crucial if companies are to put in place and test risk mitigation measures and robust operational response solutions.

Of course, what we understand by Arctic conditions can vary considerably by territory and season. Some of what we consider the workable Arctic is already accessible to operators using the technology and knowledge that we hold today.

However, as operators venture into more sensitive and, in particular, ice-covered areas, they face new and more challenging environments. DNV GL believes that industry needs to be able to analyse, understand and control the impact on these environments of an oil spill before assets become operational. That is why DNV GL has invested in a series of research programmes to understand the risk and challenges in the Arctic, and we work continuously to improve our methods for oil spill risk assessment.

Our strategy for the Arctic

Over the past 10 years, we have focused research and development efforts on the Arctic region, enabling us to support customers and the industry as they venture into this environmentally sensitive region. As part of our strategy, we have developed a detailed risk map for the Arctic; and a methodology for communicating risk and its drivers, and established a dedicated team to focus on providing advice and developing solutions that will enable the industry to prevent and, if necessary, respond promptly and effectively to oil spills in cold climates. This includes ensuring that oil spill preparedness and response strategies are adapted for cold climates, implementing standards for testing oil spill response equipment, contributing to the development of technology and equipment for oil spill response, and helping to secure the protection of the Arctic’s unique biological environment.

For further information on the Arctic risk map, please visit http://gis.dnv.com/arcticriskmap.
MEETING CUSTOMER NEEDS

DNV GL provides integrated services across a project’s lifecycle from concept design and selection through exploration, development and production, to asset decommissioning. This includes:

Oil spill risk assessment
DNV GL’s oil spill risk assessment services identify hazards and environmental concerns related to planned or current activity, enabling operators to mitigate risk and determine if activity is in line with corporate risk tolerance, including:
- Well risk assessments
- Oil spill fate and trajectory modelling
- Oil spill risk assessments, including operational tools.

Oil-spill contingency analysis and planning
Our network of experts carry out contingency analysis, preparing oil spill response plans and translating these into operational oil spill preparedness for offshore, coastal and shoreline areas, including:
- Oil spill contingency modelling and analyses
- Net environmental benefit assessment (NEBA)
- Oil spill response gap analyses
- Oil spill preparedness and response planning
- Acute strategy oil spill response planning.

Oil spill advisory services
We support customers by providing technical advice, guidance and analyses of the technologies, systems and processes used by customers during operations or as part of their oil spill preparedness and planning, including:
- Leak detection technologies and systems
- Oil spill response technologies and strategies
- Oil spill training and exercises.

Arctic oil spill response planning
As part of our Arctic strategy, we have developed a series of tailor-made services for operators looking to expand their operations into cold climates, including:
- Oil spill response technologies and solutions for the Arctic/cold climates
- Ice mapper - providing high resolution circumpolar ice concentration data on a daily basis
- Arctic oil spill response gap analysis.

Risk communication
We have developed a series of customised tools to enable operators to map and communicate the results of risk assessments and fate/trajectory modelling, including:
- Maps and customised GIS solutions
- Web solutions
- Identification of risk drivers.

Third-party verification
DNV GL also acts an independent third-party verification body, helping operators to ensure that they are well prepared to deal with incidents or authority inspections. Our experts provide critical information to achieve optimal preparedness and regulatory compliance, including:
- Verification of oil spill response equipment
- Verification of crisis management plans and procedures.

LOCAL EXPERTISE WITH A GLOBAL PRESENCE

DNV GL offers access to more than 5,500 oil and gas industry technical experts around the world. We have offices in 40 countries and a presence in every hydrocarbon-producing country.
About DNV GL

DNV GL is the world's largest ship and offshore classification society, the leading technical advisor to the global oil and gas industry, and a leading expert for the energy value chain, including renewables and energy efficiency. We are also one of the top three certification bodies in the world.

In the oil and gas industry, DNV GL enables safe, reliable and enhanced performance in projects and operations. We provide integrated services in technical and marine assurance and advisory, risk management advisory and offshore classification. Our 5,500 people combine industry expertise, multi-disciplinary skills and innovation to solve complex challenges for our customers. Together with our partners, we drive the industry forward by developing best practice and standards across the asset lifecycle. Find out more at: www.dnvgl.com