SAFER, SMARTER, GREENER

Oil Spill Risk Assessments

Environmental responsibility is an essential part of oil and gas activity. DNV GL has a long heritage in supporting offshore oil and gas operators in their work to manage environmental risk. It can also provide support for decision making related to different development concepts, and deliver a basis for approval by regulatory authorities and for stakeholder communication.

The risk of negative impact on the environment of accidental oil spills from offshore oil and gas exploration and production can be reduced, but never eliminated completely. For this reason, it is crucial for operators to identify risks, understand how spills can happen and the possible outcomes, and reduce risk to a minimum. DNV GL’s oil spill risk assessment service (OSRA) gives offshore oil and gas operators the information they need regarding environmental concerns related to planned or current activity, so that they can determine if the offshore activity is in line with corporate risk tolerance. Often, OSRA forms part of an overall risk assessment process for safety, environment and assets. It can provide operators with valuable information during the planning phase of new projects, as well as helping them to maintain control of existing activity.

Key features of oil spill risk assessment:

- Hazard identification
- Likelihood analysis
- Scenario selection
- Fate and trajectory modelling
- Mapping of sensitive resources
- Consequence analysis
- Risk evaluations and identification of risk reducing measures
- Risk communication.
DNV GL’s approach
Good company practice along with regulatory requirements have driven the need to map the environmental risks related to potential oil spills. DNV GL’s approach is to identify and thoroughly evaluate the environmental risk critical aspects, the potential impacts and the opportunities for risk reduction. This gives operating companies an overview of the main risk drivers related to their activities and highlights the main environmental resources likely to be impacted, so that they can concentrate their efforts in the right areas.

DNV GL’s OSRA services use internationally-recognised methods and tools that are compliant with standards specified by operators and authorities.

Our methodology
DNV GL’s work process for oil spill risk assessments begins with hazard identification and likelihood analysis, including selecting scenarios for assessing environmental risk. This is followed by a mapping of the local ecological and socioeconomic resources potentially affected by an accidental spill, and an assessment of the consequences and risk to these resources. Once the main risk drivers have been identified, DNV GL can further assist in evaluating both risk-reducing and mitigating measures to ensure a tolerable risk level.

DNV GL performs both qualitative and quantitative oil spill risk assessments depending on the detail level of the input data and company requirements. The quantitative approach uses state-of-the-art 3D oil spill fate and trajectory modelling tools combined with up-to-date species and habitat distribution and sensitivity data. Spill modelling can be preceded by blowout and kill studies, as well as well-specific assessments based on reservoir conditions, benchmarking analysis, statistical models and simulations.

Our approach is aligned with the OGP/IPIECA guideline for Oil Spill Risk Assessment and Oil Spill Response Planning for Offshore Installations (2013), and the Norwegian industry guideline (MIRA method).

DNV GL has worldwide experience of delivering oil spill risk assessments, including in Northern Europe, South America and Africa, as well as the circumpolar areas of the Arctic.

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FOCUSING ON ARCTIC OIL SPILL PREPAREDNESS

Oil and gas operations will require advanced technologies and the application of new knowledge if the industry is to manage the environmental effects of operations in Arctic areas. By combining our expertise in environmental risk and oil spill preparedness, DNV GL aims to play a key role in this sector, helping customers to safely and securely meet the demands of this challenging new environment.