



Oil spill sampling and source identification

What happened?

The Australian offshore petroleum regime places the responsibility for undertaking oil spill sampling solely with the titleholder. This requirement reflects the remoteness of offshore petroleum activities and the criticality of obtaining representative samples from an oil spill in order to identify its source.

A titleholder recently failed to obtain a representative sample of oil from an extensive oil sheen identified in close proximity to its facilities. The incident highlights the need for all titleholders to ensure they have sufficient and appropriate arrangements in place to obtain samples from any spill as soon as practicable after the spill has been identified in order to enable efficient and effective spill source identification. Whilst obtaining a sample, titleholders should also give due regard to the health and safety of personnel involved in the sampling operation.

Samples of oil can be easily obtained for larger or continuous spill events where the source of the spill may be obvious. It is also critical to obtain representative samples from minor oil spills or spills where the source is not immediately obvious. Sampling can be used to help identify the source of the oil spill by the elimination of credible spill sources. In this way, sources may be identified that would otherwise not be located when using other means. Identification of the source of any oil spill is critical in ensuring that the appropriate corrective action is taken to prevent further occurrences.

In the case described above, while the titleholder took samples from the oil sheen, amongst other comprehensive source identification activities, they did not follow the appropriate sampling procedures in accordance with their accepted environment plan. Consequently, they failed to obtain a representative sample of the oil from the sheen. This failure directly impacted on the titleholder's ability to identify the source of the spill or narrow down the range of potential credible spill sources.

NOPSEMA's investigation into the oil sheen incident resulted in an Environmental Improvement Notice to the titleholder. The notice related to oil spill sampling and source identification, with particular focus on rectifying the following faults:

- Suitable equipment was not available for rapid sampling of the oil spill.
- The sampling methods used were improvised, did not align with good practice, and did not provide a useful sample that could be analysed in order to give a definitive result.
- The procedures in place for maintaining the integrity of the samples were not followed.
- Staff undertaking sampling and chemical characterisation were not familiar with the oil sampling procedures that were in place.

What could go wrong?

Inadequate or poorly-implemented procedures for obtaining representative samples of spilt oil may result in failure or unnecessary delays in identifying and excluding potential credible spill sources. This is particularly relevant where the source of the oil spill is unclear and recurrent or continuous oil spills are possible. Delays or failure to identify the source may result in otherwise avoidable environmental impact and risk. Similarly in the case of recurrent spill scenarios, spills may occur in the future that could have otherwise been prevented.

Key lessons

- Effective oil spill sampling is critical for the identification of the source of the oil, regardless of whether the source is known to be from a petroleum facility. Where the source of the oil spill is not immediately obvious, sampling will be critical for narrowing down the range of credible sources of the oil in order to exclude or confirm that the oil spill originated from a titleholder's petroleum activity.

- Produced hydrocarbons should be characterised and assessed regularly by the titleholder in order to provide a reference library for comparison with the oil obtained from a spill. This should be done to better inform the oil spill response planning process.
- All personnel with responsibilities for obtaining oil samples from an oil spill need to be sufficiently trained and competent to undertake the task and should be familiar with the procedures that should be followed in order to obtain representative samples of the oil.
- The triggers for initiating oil spill sampling should be clear. Oil spill sampling should be carried out for any size of oil spill that could reach the reportable incident threshold, in order to positively identify the source of the oil spill.
- The sampling procedures and methodology used should ensure the integrity of the oil samples is maintained and the chain of custody is both appropriate and recorded.
- The storage location for all sampling equipment must enable its timely deployment. The oil spill sampling procedures should state how the oil spill sampling equipment should be deployed and establish an appropriate performance standard for the effective deployment of the equipment to the site of the oil spill.

The legislation

Regulation 14(8AA)(d) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 requires the implementation strategy to include adequate arrangements for responding to and monitoring oil pollution, including:

- c) the arrangements and capability that will be in place for monitoring the effectiveness of the control measures and ensuring that the environmental performance standards for the control measures are met.
- d) the arrangements and capability in place for monitoring oil pollution to inform response activities.

Regulation 14(5) requires the implementation strategy to include measures to ensure each employee or contractor working on, or in connection with, the activity is aware of his or her responsibilities in relation to the environment plan, including during emergencies or potential emergencies.

Regulation 7 requires a titleholder to not undertake an activity in a way that is contrary to:

- a) the environment plan in force for the activity; or
- b) any limitation or condition applying to operations for the activity under the Regulations.

References

[Environment plan assessment policy](#)

[Oil pollution risk management information paper](#)

Contact

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