

OIL SPILL CONTINGENCY PLANNING

Oil Spill Contingency Plans (OSCP)

An OSCP is required as part of the Environment Plan for operators in Australian waters regulated by NOPSEMA.

As detailed in the NOPSEMA's guidance for Preparation of Oil Spill Contingency Plans, operators are required to identify the oil types that could be involved in potential spill scenarios. The OSCP should provide up-to date data on key characteristics and properties (chemical and physical) that are relevant to oil spill response. The effect on oil characteristics resulting from weathering and the application of dispersant should be described where these factors may be relevant to the response arrangements.

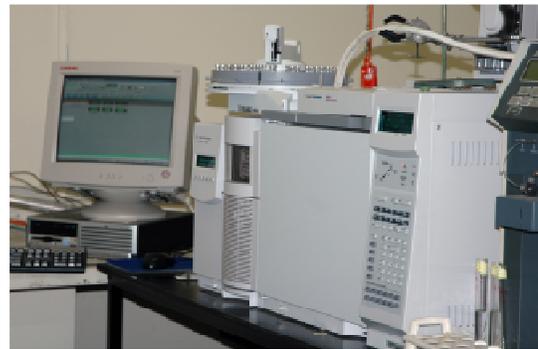
Intertek Geotech have well developed capabilities for provision of the analyses required to support the OSCP risk assessment, including -

- **Weathering studies** simulating a range of geographic conditions to determine the hydrocarbon behavior if a spill were to occur
- **Dispersant efficacy assessment** using the MacKay Testing Apparatus, to determine the appropriateness and efficacy of a dispersant in combination with the oil
- **Ecotoxicology assessments** to determine the potential biological effects of the oil and dispersant. Ideally the neat oil and a combination of the oil and dispersant are assessed to replicate the likely scenarios in the event of a spill

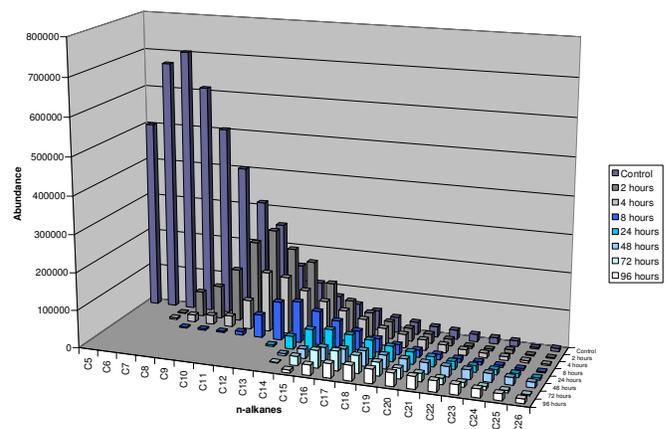
Weathering Studies

Weathering Studies are conducted using the MacKay Testing Apparatus. By regulating air speed, air temperature and water temperature, these tests enable simulation of the actual environmental conditions as they affect an oil or condensate sample.

Water and oil samples are then taken at regular intervals to monitor changes in oil volume and characteristics over time with respect to evaporative loss and solubility.



Chemical analyses are conducted using GC-FID and GC-MS equipment.



A comparison of the overall n-alkane composition of an unweathered condensate and the weathered condensates sampled over 96 hours.

Dispersant Studies

Screening

Currently there are a range of commercially available dispersants approved by the Australian Maritime Safety Authority (AMSA). In order to assist with the selection of the most suitable dispersant Intertek Geotech provides a rapid screening test that can be applied to oils and condensates.

These tests enable a quick and simple comparison of different dispersants to assist in assessing the larger scale efficacy tests.

Efficacy

Dispersant efficacy can be considered as the impact of the dispersant on oil/condensate solubility over time. Intertek Geotech performs efficacy testing based on the AMSA Test protocol OSCA P1.1, using the Mackay Testing Apparatus.

As with weathering experiments the wind speed, air temperature and water temperature of the test can be controlled.

Water samples are taken at regular time intervals to monitor dispersant efficacy.

Ecotoxicology Assessments

Intertek Geotech also provide ecotoxicology testing to assess the impacts of weathered or dispersed oils and condensates on the marine environment.

Standard acute toxicity tests (which measure short-term lethality or mortality) are used to assess the toxicity of an oil. Chronic toxicity tests (which measure long-term sublethal effects such as reproduction, growth and fecundity) are now recognised as being more environmentally relevant for assessing the long-term effects of oils which may persist at low concentrations.

Toxicity Tests for Water Quality Assessment



Bacteria
15-min Microtox®
Vibrio fischeri



Microalgae
72-hr Cell Division
Isochrysis galbana
Chlorella protothecoides



Macroalgae
72-hr Germination
Ecklonia radiata



Macrophytes
7-day Frond Production
Lemna minor



Molluscs
48-hr Fertilisation & Development
Mytilus edulis
Saccostrea glomeratus



Crustaceans
21-day Reproduction
Glyptodactylus imparipes
Ceriodaphnia dubia



Echinoderms
72-hr Fertilisation & Development
Helicodactylus erythrogramma



Fish
7-day Growth
Pagrus auratus
Danio rerio

Toxicity Tests for Sediment Quality Assessment



Amphipods
10-day Survival
6-week Reproduction
Melita plumulosa
Grandidierella sp.



Bivalves
10-day Survival and Reburial
6-week Growth
Spisula trigonella
Tellina sp.



Polychaete worms
10-day Survival and Reburial
Australonereis ehlersi



Gastropods
10-day Survival
Batillaria australis
Velacumantus australis

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