

## About

Dispersants are chemical agents used to break up oil into smaller droplets throughout the water column. Dispersants are applied to surface oil floating on water, or below the surface closer to an uncontrolled release of crude oil from a well blowout source. This series of fact sheets details monitoring requirements and how to apply the collected data to inform the use of dispersants under **Subpart J of the National Contingency Plan (NCP)**.

## Description of the Requirement

The responsible party must collect and analyze water column samples from the ambient background, baseline oil plume, and dispersed oil plume for methane (if present) in the subsurface only, using standard operating and quality assurance procedures. Refer to the regulatory requirement in the Code of Federal Regulations (CFR): **40 CFR 300.913(b)**.

## Methane

Methane is one of the hydrocarbon gases that may be released from a wellfield along with oil.

**Figure 1:** Methane sensor.



Credit: Franatech

## Measuring and Reporting Methane

- Methane is commonly measured *in situ* by devices sensitive enough to detect low concentrations, although analytical methods are also used.
- Measurement tools include submersible optical methane sensors (Figure 1).
- Methane is reported as micrograms per liter ( $\mu\text{g/L}$ ) or molar concentrations.

## Using Methane Measurements

Petroleum oil hydrocarbons such as methane are an attractive carbon and energy source for degradation by naturally occurring microbes in the water column (biodegradation). While naturally occurring processes may be an advantage for mitigating an oil spill, biodegradation rates should be carefully monitored.

- Changes in the biodegradation rate of methane in the water column may contribute to reduced dissolved oxygen concentrations.
- Reduced dissolved oxygen concentrations in the water column can negatively affect marine organisms by causing hypoxic (low oxygen) conditions.
- *In situ* methane measurements are an important variable to consider when evaluating dissolved oxygen levels, the associated carbon loading, and the potential oxygen demand.

## ▶ Decision Points for Responders

The On-Scene Coordinator should consider all available data and information relevant to the response and consult with subject matter experts. Methane measurements are an important factor for the On-Scene Coordinator to consider when evaluating dissolved oxygen levels in the water column and can inform whether dispersant use should begin, continue, continue with modifications, or cease.

## Data Collection and Reporting Frequencies

### Collection

- Methane data from the ambient background water column and baseline oil plume.
- **Daily:** Methane data from the dispersed oil plume.

### Reporting

- **Immediate:** Important ecological receptors' exposure to methane.
- **Daily:** Methane data and analyses.

## Additional Resources

### NCP Product Schedule Technical Notebook

A compilation of product bulletins summarizing data requirements and test results for dispersant products listed in EPA's NCP Product Schedule. The Technical Notebook includes information on dispersant application methods, toxicity and effectiveness, and physical properties.

### Oil Spill Emergency Response – Monitoring the Use of Dispersants Fact Sheets

- Dissolved Oxygen (Subsurface)
- Water Column Sampling
- Reporting of Dispersant Use
- Characterization of Ecological Receptors - Habitats
- Characterization of Ecological Receptors – Toxicity

## Legal Disclaimer

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