



spread through the water column. At the start the concentration of droplets just below the water surface is very high, increasing toxicity. But as the oil dilutes through the water column, toxicity levels quickly drop. Naturally-occurring bacteria also have much greater access to the oil so it breaks down more quickly.

## How is it used?

Dispersants are only one of a range of options for dealing with an oil spill, and a number of factors are considered before using it, including:

- **Water conditions** – rough seas will break up an oil spill more quickly, but will also mean booms and skimmers will not work.
- **Oil trajectory** – if a spill is heading towards an area that's easy to clean, it may be best to allow the spill to reach the shore, and then clean it up. If the spill is moving towards a more sensitive area, such as an estuary or wildlife habitat, the priority is to prevent as much oil as possible reaching the shore.
- **Type of oil** – some oil breaks up quickly in the environment and requires little intervention. Other oils stay in the environment for a long time if not dispersed or collected.

## How was Corexit used when the Rena grounded?

In the early days of the response to the Rena grounding in October 2011, Corexit 9500 and a small amount of Corexit 9527 were trialed on the heavy fuel oil spilled. This was stopped after three days because the dispersant was not effective in the prevailing conditions. No other chemicals were used.

The response was managed by Maritime NZ and the dispersant

was used in accordance with New Zealand's Guidelines for Dispersant Use – in deep water, around 20 km offshore. About 3000 litres of dispersant was used, compared with the estimated 5.4 trillion cubic metres of water (or more than 216 million Olympic swimming pools), in the Bay of Plenty.

## What effects does Corexit have on human health and the environment?

Research into Corexit products show its components break down relatively quickly, and it's unlikely to have ongoing effects on water or coastal areas.

There have been no reports of any ill health linked to either the oil or dispersant.

A comprehensive on-going environmental monitoring programme is studying the effects of the Rena oil spill on coastal waters, led by Bay of Plenty Regional Council. Maritime NZ worked closely with Bay of Plenty Public Health authorities throughout the Rena response to ensure any public health concerns were addressed.

Massey University tested affected wildlife during the Rena response, and the Regional Council's ongoing environmental programme is looking at effects on both the flora and fauna.

## How is Corexit stored in the Bay of Plenty?

Bay of Plenty Regional Council stores 3200 litres of Corexit 9527 for Maritime NZ at the Port of Tauranga, along with other equipment that may be used in an oil spill Tier 2 response. It would only be used in larger offshore spills if the conditions and oil was appropriate, as required under the guidelines, and under delegation from Maritime NZ.

## What is Corexit?

Corexit 9500 and 9527 are two of the five approved oil dispersants held in stock in New Zealand. Dispersants approved for use must meet the requirements of 'Marine Protection Rules Part 132: Dispersants and Emulsifiers'.

## How does it work?

If an oil spill occurs, the challenge is to minimise the effects overall. We wouldn't normally put any chemical into the sea, and dispersants are only used when the environmental risk from an oil spill is greater than the risk from the dispersant.

Oil from a spill floats on the surface of water and when in a slick, it's very toxic as its concentration is near 100 percent oil. Adding dispersant to a floating layer of oil breaks the oil into small particles to reduce the concentration, and speeds up the natural process of breaking it down with bacteria.

When a slick is broken down by dispersants, the small particles no longer float on the surface but are