FACT SHEET: No. 6 Fuel Oil (Bunker C) Spills

- No. 6 fuel oil is a dense, viscous oil produced by blending heavy residual oils with a lighter oil (often No. 2 fuel oil) to meet specifications for viscosity and pour point.

- When spilled on water, No. 6 fuel usually spreads into thick, dark colored slicks, which can contain large amounts of oil.

- The most viscous no. 6 oils will often breakup into discrete patches and tarballs when spilled instead of forming slicks. Oil recovery by skimmers and vacuum pumps can be very effective, early in the spill. Very little of this viscous oil is likely to disperse into the water column.

- It is a persistent oil; only 5-10% is expected to evaporate within the first hours of a spill. Consequently, the oil can be carried hundreds of miles in the form of scattered tarballs by winds and currents. The tarballs will vary in diameter from several meters to a few centimeters and may be very difficult to detect visually or with remote sensing techniques.

- The specific gravity of a particular No. 6 fuel oil can vary from 0.95 to greater than 1.03. Thus, spilled oil can float, suspend in the water column, or sink. Small changes in water density may dictate whether the oil will sink or float.

- Floating oil in a high sediment environment (rivers, beaches) could potentially sink once it picks up sediment, resulting in subsurface tarballs or tarmats.

- These oils can occasionally form an emulsion, but usually only slowly and after a period of days.

- Because of its high viscosity, beached oil tends to remain on the surface rather than penetrate sediments. Light accumulations usually form a "bathtub ring" at the high-tide line; heavy accumulations can pool on the beach.

- Shoreline cleanup can be very effective, before the oil weathers, becoming stickier and even more viscous. Natural degradation rates for these heavy oils are very slow. The oil may persist on beaches for months to years.

- Adverse effects of floating No. 6 fuel oil are related primarily to coating of wildlife dwelling on the water surface, smothering of intertidal organisms, and long-term sediment contamination. No. 6 fuel oil is not expected to be as acutely toxic to water column organisms as lighter oils, such as No. 2 fuel oil.

- Direct mortality rates can be high for seabirds, waterfowl, and fur-bearing marine mammals, especially where populations are concentrated in small areas, such as during bird migrations or marine mammal haulouts.

- Direct mortality rates are generally less for shorebirds because they rarely enter the water. Shorebirds, which feed in intertidal habitats where oil strands and persists, are at higher risk of sublethal effects from either contaminated or reduced population of prey.

- The most important factors determining the impacts of No. 6 fuel oil contamination on marshes are the extent of oiling on the vegetation and the degree of sediment contamination from the spill or disturbance from the cleanup. Many plants can survive partial oiling; fewer survive when all or most of the above-ground vegetation is coated with heavy oil. However, unless the substrate is heavily oiled, the roots often survive and the plants can re-grow.

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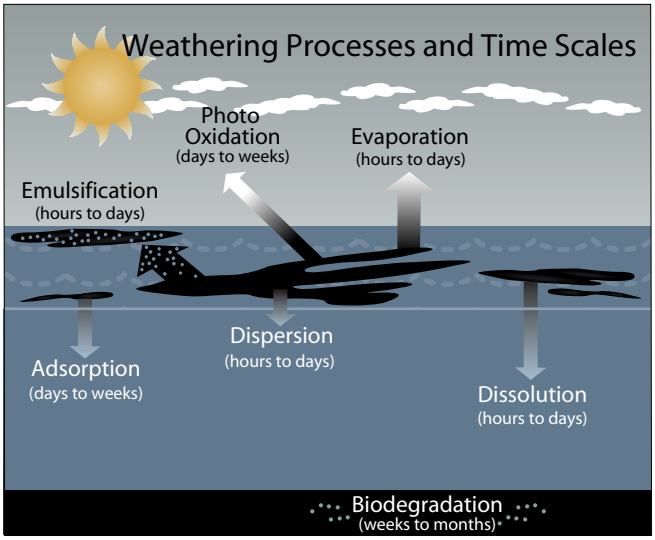

This figure shows the major weathering processes affecting fuel oil spills. Even at high wind speeds, usually over 70% of a Fuel Oil No. 6 will persist as floating or beached oil for a week or longer.

Adsorption
The process by which one substance is attracted to and adheres to the surface of another substance without actually penetrating its internal structure

Biodegradation
The degradation of substances resulting from their use as food energy sources by certain micro-organisms including bacteria, fungi, and yeasts

Dispersion
The distribution of spilled oil into the upper layers of the water column by natural wave action or application of chemical dispersants

Dissolution
The act or process of dissolving one substance in another

Emulsification
The process whereby one liquid is dispersed into another liquid in the form of small droplets

Evaporation
The process whereby any substance is converted from a liquid state to become part of the surrounding atmosphere in the form of a vapor

Photo Oxidation
Sunlight-promoted chemical reaction of oxygen in the air and oil

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