TYPES OF OIL:
DILBIT

Alberta's Athabasca oil sands contain a naturally-occurring petroleum called crude bitumen, which can be upgraded into a synthetic crude oil and ultimately refined into a full range of petroleum products. Due to the cold climate, Canada's bitumen deposits exist in a semi-solid or solid state and will not flow unless heated or diluted with lighter hydrocarbons. When a diluent is added to the bitumen, it produces a homogenous blend with considerably lower density and viscosity, allowing the product to be transported via pipeline. This product is known as diluted bitumen, or dilbit.

In Western Canada, dilbit is currently transported to tidewater via Kinder Morgan's Trans Mountain Pipeline, which originates in Edmonton, Alberta, and extends west across British Columbia to Burnaby's Westridge Marine Terminal. The dilbit is then loaded onto vessels and traverses the Southern Shipping Lane en route to overseas ports. When the Trans Mountain Expansion Pipeline becomes operational in 2019, the volume of oil transported is expected to nearly triple.

WHAT TYPE OF OIL IS DILBIT?

Dilbit is an extra-heavy, extremely viscous petroleum product. Diluents used to thin the bitumen include lighter crude oils, synthetic crude oils or natural gas condensates. Categorized as a persistent oil, most dilbits are composed of 70 to 80 per cent bitumen and 20 to 30 per cent condensate.

The exact physical-chemical properties of a dilbit are determined by the source of the original deposit from which the bitumen was extracted, combined with the production year and the blending ratio of the final product.

WHAT TYPES OF VESSELS TRANSPORT DILBIT?

Dilbit is primarily transported by crude tanker or tank barge.

WHAT HAPPENS WHEN DILBIT SPILLS IN SEA WATER?

When dilbit is released into the marine environment it will naturally float, as its initial density is lower than the density of sea water. As the dilbit weathers due to turbulence, temperature, winds, currents and wave action, and the diluent's lighter elements evaporate, it can become denser than the receiving body of water. If this occurs, the dilbit could begin to display nonfloating characteristics, including submersion just below the sea's surface, suspension in the water column or sinking to the seafloor. Should dilbit strand on shorelines, the degree of potential penetration and retention are dependent on the product's viscosity and state of weathering. Refer to the NFO fact sheet for more details on submerged, suspended or sunken dilbit.

HOW DOES SPILLED DILBIT AFFECT MARINE FLORA AND FAUNA?

Floating dilbit can endanger surface-dwelling wildlife or wildlife that frequently surfaces, such as aquatic and semi-aquatic mammals, seabirds, waterfowl, turtles and aquatic insects. These species are vulnerable to acute mortality due to hypothermia from loss of insulation, oil ingestion or inhalation of toxic fumes.

If dilbit transforms into an NFO, it can affect adult fish, fish larvae, species that feed on or come into contact with sediments, and seabed habitats such as coral reefs. Refer to the NFO fact sheet for more details.

HOW IS DILBIT CLEANED UP?

Brush skimmers, sorbent booms and sorbent pads have proven very effective in removing dilbit from the surface of the water. If dilbit submerges or sinks, response strategies for NFOs would be employed. If dilbit strands on shorelines, standard manual and mechanical recovery tactics could be used. Refer to the NFO fact sheet for more details.

WCMRC
Western Canada Marine Response Corporation

wcmrc.com
South Coast | Burnaby: 604-294-6001
Vancouver Island | Duncan: 250-746-9443
North Coast | Prince Rupert: 250-624-5666

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