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Use of Bioremediation Agents on Petroleum Spills

For spills of petroleum (gasoline, diesel, lubricants), NDEE recommends the use of mechanical methods to completely recover the spilled petroleum. Mechanical methods generally include clay-based granular absorbents¹, sorbent booms/pads, skimmer pumps, vacuum truck(s), and/or excavation of petroleum-contaminated media.

On occasion, first responders, or cleanup contractors, will apply a product containing exogenous petroleum-degrading microbes (bio-augmentation) onto a spill area. The responders and/or contractors then assume the area to be successfully treated and no mechanical recovery is initiated. Some fire-fighting foams have been marketed to fire departments as a bioremediation agent.

The EPA National Contingency Plan (NCP) lists bio-augmentation/bioremediation agents.² NCP agents have been employed with varying success on offshore marine spills of oil. Bio-augmentation may have some value in removing residual oil from the surface of warm ocean water and the controlled environment of a long-term soil remediation project (such as a bio-pile where temperature, moisture content, and aeration can be monitored and controlled).

The NDEE has not found the application of these agents to petroleum spills to be effective. The NDEE Petroleum Remediation Section (PRS) ran several test trials of bio-augmentation in the 1990s. NDEE PRS saw little to no benefit in their test trials of bio-augmentation.

Although NDEE discourages the use of bioremediation agents on most petroleum spills, it cannot prevent someone from applying a bioremediation agent to the land surface if it is in accordance with the manufacturer's explicit instructions. NDEE offers the following guidance:

- Subsurface injections of these products may be subject to NDEE Underground Injection Control requirements and/or permits.
- Use of NCP Product Schedule products (such as dispersants and bioremediation agents) on surface water may be subject to Environmental Protection Agency review/approval.³
- NCP Product Schedule products that reach surface water could result in a violation of Nebraska Title 117 – Standards for Water Quality.
- NDEE does not consider application of a bioremediation agent to a petroleum spill as proof that the spill has been cleaned up. If a bioremediation agent is used in lieu of mechanical removal of spilled petroleum, please be aware that NDEE will require additional investigation (sampling/analysis, monitor well construction) and/or additional remedial actions be performed.

Questions regarding this guidance may be made to the NDEE Petroleum Remediation Section at (402) 471-2186 or at NDEE.PetroleumRemediationSection@nebraska.gov

¹ Oil-Dri is an example.

² Some tradenames of bioremediation agents include Micro-Blaze, AgroREMEDI, Oppenheimer Formula, etc.

³ If the water has a nexus to waters of the U.S.