

## SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) & STORM WATER BMPS HAZARDS OF OIL

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(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

This SOP complements the UNL Spill Prevention Control and Countermeasures Plans (SPCC Plans) which were developed and implemented pursuant to the Oil Pollution Prevention Regulations (40 CFR 112). It also complements storm water best management practices (BMPs) developed as part of UNL's Small Municipal Separate Storm Sewer System (SMS4) National Pollutant Discharge Elimination System (NPDES) Permit. These plans and BMPs detail the steps that UNL has and will continue to take to prevent "oil" from contaminating the environment. In the context of the SPCC regulations, the definition of 'oil' includes:

1. Gasoline.
2. Fuel oils.
3. Lubricating oils.
4. Bunker oils.
5. Transformer oil.
6. Cooking oils and grease.

Note that transformer oil and cooking oil and grease are listed only for completeness of the definition. UNL does not have any location with these 'oils' that are subject to either a plan or BMP.

The purpose of this SOP is to inform affected personnel (those involved with oil operations at regulated campus locations) of the hazards of various types of oils that are subject to the SPCC Plan and storm water BMPs.

### **Gasoline**

Gasoline is very volatile and flammable. It can be ignited by sparks and flames, even at very cold outdoor temperatures. Gasoline vapors can travel to distant ignition sources and flash back. In confined and poorly ventilated areas, vapors can accumulate to explosive levels. Gasoline is toxic, and is particularly dangerous by the inhalation route of exposure. However, it has good warning properties (i.e., is easy to smell) and well defined exposure symptoms (nausea, dizziness, headaches).

### **Fuel oil**

Fuel oil, such as diesel fuel, is somewhat volatile and flammable. It can be easily ignited only when heated above 100°F (i.e., a hot day or exposure to other heat sources). Vapors can travel to ignition sources and flash back. In confined and poorly ventilated areas, vapors can accumulate to explosive levels. Fuel oil is much less toxic than gasoline. Warning properties and exposure symptoms are similar to gasoline.

### **Bunker oil**

Bunker oil is less volatile than diesel fuel. It must be heated to over 140°F before it produces enough vapors to ignite in the presence of sparks or flames. Thus, with the possible exception of spills on summer, sun-baked asphalt, or other intense sources of heat, it cannot catch fire. Since it is not very volatile, it does not pose much of an inhalation hazard. Danger from other routes of exposure is small.

### **Lubricating oil**

Lubricating oil, such as motor oil, is not volatile but is combustible. Lubricating oil must be heated to over 400°F to burn. Thus, for lubricating oil to catch fire some other intense source of heat must be present (i.e., other materials on fire, hot engine manifold, etc.). It poses essentially no inhalation hazard unless it is being misted. Danger from other routes of exposure is small.

### **Transformer oil**

Transformer oil is used to conduct heat away from and electrically insulate equipment used to convert electricity from high amperage to low amperage lines. With a flashpoint greater than 230°F, it is combustible. For it to catch fire, some other intense source of heat must be present (i.e., other materials on fire, electrical arcing, etc.). It poses essentially no inhalation hazard unless it is being misted. Danger from other routes of exposure is also small. However, if the oil contains PCBs, skin contact or inhalation of mists presents serious danger. PCBs are carcinogens. Few, if any, PCB-contaminated oils are present at UNL.

### **Cooking oil and Grease**

Cooking oil and grease are not volatile, but they are combustible. Both must be heated to over 400°F to burn. Thus, for cooking oil or grease to catch fire, some other intense source of heat must be present (i.e., other materials on fire, hot burners, pilot lights, etc.). It poses essentially no inhalation hazard unless it is being misted. Danger from other routes of exposure is small.

Oils that enter storm drains and waterways leading to lakes and streams are a serious environmental hazard. Oils can damage plants and animals in fresh water and marine systems. Birds, fish and other wildlife can be directly affected by contact and indirectly affected by loss of food sources and habitat. Economic hazards can be drastic as well, requiring extensive cleanup, habitat restoration, and legal costs.