University of Nebraska Lincoln

Safe Operating Procedure

(Revised 2/16)

OIL SPILL/RELEASE PREPARATION & RESPONSE

Scope

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 UNL's Small Municipal Separate Storm Sewer System (SMS4) National Pollutant Discharge Elimination System (NPDES) Permit. The purpose of this SOP is to provide awareness of the hazards of various types of oils, guidance for minimizing the potential for oil spills/releases, and action to take in response to an oil spill or release to mitigate threats to the environment, property, and persons. In the context of the SPCC regulations, the definition of 'oil' includes gasoline, fuel oils, lubricating oils, bunker oils, transformer oils, and cooking oils and grease.

Physical and Health Hazards of Various Oils

- 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.

Environmental Hazards

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.

Planning and Preparation

Spill kits have been established at many sites around campus where significant volumes of oil are stored. The amount of spill materials kept at each location depends on the volume of oils stored there. Spill kit materials will assist in creating berms around and absorbing spilled oils. The absorbents are of two types: diatomaceous earth (Oil Sorb) and polypropylene. Oil Sorb is supplied in 25-pound paper bags. Polypropylene is supplied as socks, pillows, and pads. The use and limitations of each is described below.

Absorbent Type	Use	Limitations(s)
Oil Sorb	Spread on the leading edge of an oil spill and work back to the source.	Can absorb its weight in oil. Will absorb both water and oil. Does not float on water.
Polypropylene	Spread on the leading edge of an oil spill and work back to the source.	Can absorb 25 times its weight in oil. Will only absorb oil. Will float on water even if oil saturated.

Blocking/diking materials are also of two types: sand bags and elastomer mats and berms. The use and limitation of each is described below.

Diking Material	Use	Limitation(s)
Sand Bags	Place in path of flow and butt the ends of the bags tightly to each other to form a barrier.	Getting a good seal between adjacent bags and the ground can be difficult. Use absorbent to catch leakage. Each bag weighs about 70 pounds and thus is difficult for some to move.
Elastomer Mats	Place over storm or sanitary drains to seal them.	May not completely cover some larger drains. May not form a perfect seal on rough surfaces or along curbs.
Elastomer Berms	Place in the path of flow to form a barrier or lay around drain openings to form a barrier.	May not completely encircle some larger drains. May not form a perfect seal on rough surfaces or along curbs.

Incidental Oil Spill Response Procedures
An incidental spill is a manageable spill that poses low risk to safety and health and is not likely to adversely impact the environment. Incidental oil spill response procedures are as follows:

- Eliminate the source of the spill by up righting drums or other containers, closing valves, or other similar actions.
- Prevent the oil from leaving the building, spreading to adjacent areas, or entering drains by absorbing flowing oil, diking the area, and/or using drain plugs/barriers.
- Spread absorbents over the surface of the spill working from the perimeter of the spill to its center. Socks and pillows work best on pooled liquid while pads have an advantage on thin layers of oil.
- Call EHS at 402-472-4925 during normal business hours or by dialing the Campus Operator at “0” after hours if assistance in spill control and clean up is necessary.
- Contaminated absorbents of less than 5 gallons/30 pounds containing diesel fuel, motor oil, bunker oil and non-PCB containing transformer oil can be disposed as normal trash. Absorbents from all gasoline and PCB transformer oil spills and volumes of absorbents greater than 5 gallons/30 pounds must be sent to EHS for disposal. Containerize spill residues (i.e. contaminated socks, pads, Oil Sorb, etc.) and tag for collection by EHS.

Emergency Oil Spills
The Incidental Oil Spill procedures must be modified for a spill that is an emergency. An emergency situation exists when:

- The quantity of spilled oil is 25 gallons or larger, or
- The spill has entered a sanitary or storm drain, or

- The spill has entered a ground or surface water, or
- The spill can not be contained or stopped, or
- The spill poses a fire/explosion hazard, or
- Additional spill equipment is needed and is not immediately available.

In the case of an emergency spill, the person discovering it should summon emergency responders by dialing ‘911’ and remain in the vicinity but at a safe distance until released by emergency responders. If it is safe to do so:

- Take action to stop the spill if it is continuing (i.e. shutting off valves, up righting containers, etc.),
- Take action to prevent the spill from entering sewers or streams and to minimize the area affected. Such actions might consist of absorbing flowing oil or diking the area with sand bags, elastomer mats, or elastomer berms, etc.