



Fire departments and small fuel spills

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Fire departments get many calls to vehicle accidents, spills at gas stations, and other small petroleum spills. These incidents, which can create fire, traffic and pollution threats, can be handled simply.

This fact sheet applies to spills of about 10 gallons of gasoline, diesel fuel, waste oil, or other engine fluids. This guidance does not apply to spills of chemicals, leaks of polychlorinated biphenyl (PCB) oil, or PCB-contaminated oil from electrical equipment, such as transformers.

What damage can small spills create?

All types of petroleum can create traffic hazards by making roads slippery.

All types of petroleum are mixtures of toxic chemicals that, if not recovered, pose health threats in drinking water wells if they percolate into the ground water.

Petroleum can kill aquatic life and wildlife if it reaches surface water through a storm sewer.

Gasoline can create severe fire hazards near traffic, in buildings, or in sewers.

Gasoline in a sanitary sewer can present explosion threats and disable a

wastewater treatment plant's ability to treat sewage.

What are the properties of petroleum?

Petroleum is a mixture of many chemicals, many of which evaporate quickly. This is especially true of gasoline. That's why it's so flammable and why it evaporates quickly from warm pavement.

Many of the compounds in petroleum are toxic — especially if they are in high concentrations. The chemicals in petroleum that do not evaporate quickly are “biodegradable,” which means they can be degraded or “eaten up” by bacteria and other microbes in the soil.

Optimum degradation occurs if the petroleum is diluted and there is enough air, water and nutrients for the microbes. Firefighters can use these properties of petroleum to their advantage in cleaning up and disposing of waste from small spills.

What are the basic steps in responding to a petroleum spill?

Step 1: Stop the spill. The leak or spill should be stopped by properly qualified and equipped personnel — if this can be done safely. Turn off nozzles or valves from the leaking container, if it can be done safely. Use a

wooden plug, bolt, band or putty on a puncture-type hole.

Step 2: Contain and recover the spill. If the spill or leak cannot be stopped, catch the flowing liquid using a pan, pail, hubcap, shovel or whatever is available. Spreading sorbent material, such as kitty litter, sand, ground corncobs, straw, sawdust, wood chips, peat, synthetic sorbent pads, or dirt from the roadside can stop the flow and soak up the petroleum on pavement. Sorbents do not make petroleum nonflammable.

“Solidifiers” are powders or liquids that react with petroleum to turn it into a rubbery substance, immobilizing and lowering the vapor levels. Solidifiers are safe for use on spills, however, their effectiveness depends on how the material is applied and used.

Step 3: Collect the contaminated sorbent.

Brooms can be used to sweep up the sorbent material and put it into buckets, garbage cans or barrels or on top of plastic sheeting. Remember to control ignition sources. Fresh granular sorbent such as sand can then be re-spread on a roadway to control the residual slipperiness.

Step 4: Secure the waste. If the spill is at a business or if the vehicle in an accident is a commercial vehicle, disposal of the contaminated sorbent is the business’ responsibility. The company is required to call the Minnesota Duty Officer at (651) 649-5451 or (800) 422-0798 to report spills of petroleum greater than five gallons. The Minnesota Pollution Control Agency (MPCA) will direct the business on disposal of the wastes.

With the exception of used oil, waste generated from petroleum spills that have been reported and cleaned up immediately are exempt from Minnesota’s Hazardous Waste Rules. A fire department can leave the sorbent in the hands of the business that had the spill or leave it at the scene.

If the spill is a very small spill from a car or a “mystery spill,” sweeping used sorbent onto a road’s shoulder is better than leaving it on the roadway or not using sorbent at all. Alternatively, a

fire department may elect to take care of the contaminated sorbent. If so, collect and store the sorbent for later treatment or disposal.

How can fire departments properly dispose of or treat waste?

Methods of waste disposal include land treatment, thermal treatment, and incineration.

For land treatment, thinly spread the sorbent in an area where it can evaporate and where the bacteria can get plenty of air, water and nutrients for biodegradation, while not causing fire or pollution problems.

Select a flat area, preferably with some vegetation and fertile soil, where the property owner does not object. A gravel parking lot can work if a vegetated area is not available. Spread the sorbent across the area and rake, blade or mix it in with the soil. The bacteria will quickly begin to work without creating vapor or pollution hazards. This method of land treatment, called “thin-spreading,” is for treating contaminated sand, kitty litter, corncobs and wood chips.

Fire departments do not need the MPCA’s approval to thin-spread small amounts of spilled fuel where the property owner does not object.

Many asphalt facilities in the state are permitted to thermally treat contaminated soils. Contaminated sand or clay kitty litter could be treated in the same manner. The MPCA maintains a list of permitted plants that can accept and treat these wastes.

A fire department can collect used sorbent in a drum and store and label it like other flammable materials. When the drum is full, arrangements can be made for treatment or disposal. The MPCA Emergency Response Team will help with these arrangements.

Incineration is the only method available for disposing of spent, synthetic sorbent, such as booms and pads. This method is total destruction of the waste. The MPCA has a list of the permitted

facilities in the state and, the Emergency Response Team can assist with these arrangements.

What about washing down spills?

The fire department is in charge when a scene presents public safety hazards. Washing down a spill can quickly move petroleum from a roadway. Flushing a diesel or fuel oil spill usually leaves the pavement even more slippery, so sand has to be spread anyway. Washing down a gasoline spill may move the vapor hazard to a storm or sanitary sewer and an underground explosion may result.

Petroleum flushed to ditches or storm sewers may travel to streams or lakes, creating fish kills or damage to wildlife. The MPCA Emergency Response Team does not recommend washing spills down.

What about using chemicals, such as a detergent or a dispersant, on a spill?

Detergents or dispersants break up petroleum into very small droplets in water. The MPCA discourages use of these products because their use can create additional problems. The petroleum remains dissolved for only a while and then it will reform and float on the water surface. Vapors can then be regenerated in the sewer or the ditch. Sometimes dispersants actually increase the vapor level. The dissolved petroleum is much more toxic to animal life and can travel more easily into the ground.

What if a spill has already reached water in a ditch or pond?

Again, most of the petroleum can usually be recovered by using a sorbent. Use dry straw, grass, corncobs or other natural material that will float. Remove contaminated sorbent straw or grass with a rake and thin-spread it so biodegradation can take place. Synthetic sorbent pads or booms are more efficient and effective. "Oil only" sorbent pads or booms will absorb oil and repel water, float on top of the water and are easily retrievable. With the MPCA's approval, small amounts of contaminated sorbents can be burned in training fires.

What if there's a big spill or a chemical spill?

The fire department should protect the public's safety. The fire department and/or the spiller should contact the MPCA through the Minnesota Duty Officer at (651) 649-5451 or (800) 422-0798. The MPCA will direct the spiller on the cleanup or may send a state contractor to do the cleanup if the spiller cannot or will not respond appropriately. The State Chemical Assessment Teams and Emergency Response Team are also available to local government by request through the Minnesota Duty Officer.

What other information is available?

The MPCA has a series of fact sheets on spill prevention, cleanup and disposal. MPCA staff conducts periodic training sessions for fire departments on control of small spills, using sorbent and containment booms, and response to big spills.

For more information, call the MPCA at (651) 296-6300 or (800) 657-3864 and ask for a member of the Emergency Response Team or go to www.pca.state.mn.us/cleanup/pubs/ertpubs.html on the Internet.

More information is available also on the Web site of the U.S. Environmental Protection Agency at www.epa.gov/oilspill/.