SL251

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Cleaning Up Petroleum Releases to Soil[1]

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Releases of Petroleum

Spills of gasoline, diesel fuel or oil on the soil can cause serious concerns in Florida. In much of the state, groundwater is close to the surface and provides about 90% of the drinking water for the residents.

The best way to handle a spill is to prevent it. Spill kits with absorbent material should be readily available in vehicles, near tanks, or where petroleum products are handled. The spill kit should contain "kitty litter" (vermiculite), absorbent pads or "socks" for the type of material being handled, chemical-resistant gloves, a broom and pan to sweep up material (if used), and a container to put it all in after the clean up. Use non-sparking tools to prevent fires. For small spills, a one-gallon container with absorbent pads could be sufficient. Larger containers with more equipment and materials are appropriate for larger spills. Steps to follow in response to a spill are shown in Table 1.

If spills are not cleaned up immediately, contaminants can travel through the soil to groundwater in a relatively short amount of time, contaminating the drinking water locally, and sometimes quite some distance away from the spill. The rule addressing the clean up of petroleum spills is Chapter 62-770, Florida Administrative Code (FAC) - Petroleum Contamination Site Cleanup Criteria. It's found online at http://www.dep.state.fl.us/waste/quick_topics/rules/documents/62-770.pdf. The Florida Department of Environmental Protection (FDEP) enforces the rule and is available to answer questions and concerns regarding compliance.

Table 1. Steps to take when responding to a spill.

	Spill Response
1.	Notify people in the area.
2.	Get spill kit and protective equipment.
3.	Stop the spill, confine and contain it with absorbent material.
4.	Place used material in a sealed container for proper disposal.

Categories of Petroleum

In the rule, petroleum products fall into three different categories. The first group, the Gasoline Analytical Group, includes aviation gasoline, gasohol, and motor gasoline or equivalent petroleum products.

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The second group, the Kerosene Analytical Group includes diesel, Jet-A, Jet-B, JP-4, JP-5, and kerosene or equivalent petroleum products.

The third group includes Used Oil, any identified products that are neither Gasoline nor Kerosene Analytical Groups, or products for which the specific identity is unknown. Used oil is defined as "any lubricants for use in internal combustion engines that have been refined from crude oil and, as a result of use, storage, or handling, have become unsuitable for their original purpose due to the presence of impurities or loss of properties, but that may be suitable for further use as a fuel or are economically recyclable for use as a fuel." In other words, if it is a petroleum based product that isn't synthetic and can be sold to a recycler, it qualifies as used oil.

Used oil cannot have been mixed with any chemical that has been identified as hazardous waste, unless the material is a hazardous waste solely due to the characteristic of ignitability as defined in the hazardous waste regulation 40 Code of Federal Regulation Part 261, Subpart C found online at http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=cc2d2d8ecf293f174632298ef39e2da0&rgn=div6&view=text&node=40:25.0.1.1.2.3&idno=40.

Chemicals that do not meet these petroleum definitions are cleaned up under a different regulation, Chapter 62-780, FAC - "Contaminated Site Cleanup Criteria", and will not be addressed in this paper. Products that might fall under these regulations include transformer oil, cleaners and degreasers, and other non-petroleum chemicals.

Reporting Requirements

A spill of less than 25 gallons does not need to be reported to FDEP as long as it is cleaned up (soil removed) and no contamination remains. When a spill of 25 gallons or more is discovered on land, it must be reported to FDEP within one week of discovery.

If any amount of petroleum or other chemical is spilled in surface water, it must be reported to the National Response Center and the State Warning Point within one hour. If the water is a navigable waterway, the spill must be reported to the National Response Center and to the Florida Marine Patrol. These contact numbers are shown in Table 2.

Either the land owner or the person responsible for the spill must report using the Discharge Report Form [Form Number 62-761.900(1)], found online at http://www.dep.state.fl.us/waste/quick_topics/forms/documents/62-770/770_1.doc or at the local FDEP office. If the spill, or discharge, is from a storage tank, the spill must be reported to the County tank compliance office or the FDEP district office within 24 hours or before the end of the next business day.

Table 2. Important contact numbers.

NATIONAL RESPONSE CENTER **1-800-424-8802**
STATE WARNING POINT **1-800-320-0519**
FLORIDA MARINE PATROL **1-800-342-5367**

Cleanup Operations

Cleanup operations must begin within 3 days of discovery of the release or spill. Realizing that most people do not have the equipment or technical expertise to dig up soil or pump groundwater, FDEP allows the owner to contract for services in that period of time.

While most cleanup operations must be approved by FDEP, there are a few things that can be done to reduce long-term cleanup costs.

First, try to recover as much product as possible, as soon as possible. It will probably not be reusable as a product, but getting it out of the ground helps in the long run. Use absorbent pads to get the product off the ground surface. Absorbent pads also work well on surface waters, such as ponds, ditches, lakes, etc. Skimmer pumps or vacuum pumps work well if the product is on surface water or in a well. The main thing to remember is to not contaminate any more land or water by smearing or spreading the product around. Figure 1 shows product being removed from a monitoring well.

Figure 1. Free product bailed from monitoring well.

Soil Removal

Soil removal requires the approval of FDEP, and should be done by a qualified contractor. FDEP has a website to identify or verify contractors who are approved for the pre-approval program: http://www.dep.state.fl.us/waste/categories/pcp/pages/qualified.htm . The contractor will write a Source Removal Report to submit to FDEP. Analysis of samples taken by the contractor will determine if further work will be necessary. Figure 2 has a flow chart that shows the possible paths for clean up operations.

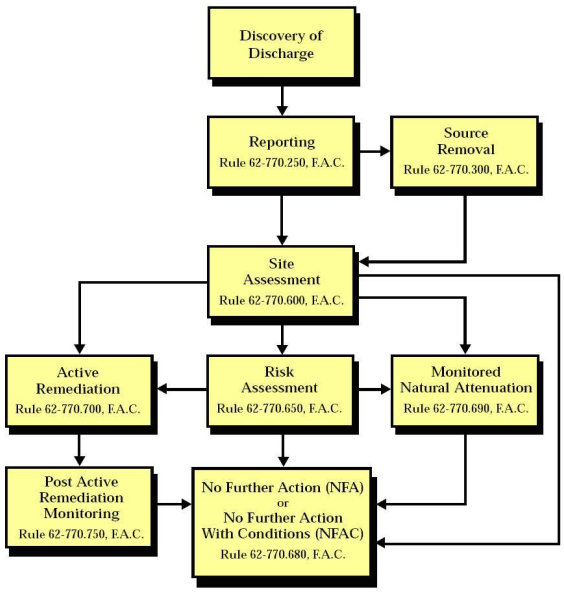

Figure 2. Flow chart showing the cleanup process.

Land Farming

If the owner has sufficient land at the location of the spill, the excavated soil may be land farmed onsite and placed back into the excavation within 60 days. To be reused in the excavation, it must meet the appropriate Cleanup Target Levels.

FDEP prefers that excavated soil be treated by land farming instead of being disposed in a landfill. Approval from FDEP is required for this method and certain criteria apply regarding its placement and construction. The soil is placed on an impervious surface and covered to prevent water from entering or leaving the soil. Groundwater and air monitoring are required, and the soil is sampled prior to being placed back into the excavation.

Summary

Prompt and timely cleanup of a spill or release prevents further contamination of soil and groundwater. Large spills have the potential to quickly escalate beyond the capabilities of most individuals, and thus proper cleanup requires approval from FDEP. Preventing the release is always preferable, but FDEP provides valuable guidance to assist the land owner in preserving Florida's precious resources.

References

Chapter 26-770 Florida Administrative Code. *Petroleum Contamination Site Cleanup Criteria*. 2005.

Florida. Department of Environmental Protection. *Guide to Florida's Petroleum Cleanup Program*. Tallahassee FL: Florida Department of Environmental Protection, 2002.