



## **Petroleum Remediation Program**

Minnesota Pollution Control Agency

[http://www.pca.state.mn.us/programs/lust\\_p.html](http://www.pca.state.mn.us/programs/lust_p.html)

# **The Facts About Composting Petroleum Contaminated Soil**

Guidance Document 3-14

In Minnesota, composting isn't just for gardeners. Soil composting is a low-cost, low-maintenance and cost-effective method for treating soil that is contaminated with petroleum products. Minnesota is one of the nation's leaders in the use of this type of environmentally sound soil remediation.

### ***How does soil composting work?***

A soil compost pile, sometimes called a "biopile," works on the same principles as the compost pile in your backyard, using bacteria and fungi to decompose the organic wastes in the soil. These microorganisms use petroleum as a food source and with time, convert or decompose the petroleum into harmless carbon dioxide and water. According to the American Petroleum Institute, there are more than a billion of these organisms in every two pounds of soil.

### ***How are soil composting piles constructed?***

Soil compost piles are constructed to provide the best possible conditions for bacteria and fungi to do their job. Prior to constructing the pile, the contaminated soil is mixed with a fertilizer, usually in the form of manure or a commercial fertilizer, to increase the nutrient content of the soil.

Moistened wood chips, saw dust or straw are also added to help maintain the water content. And, perforated pipes are installed during the construction to help distribute fresh air through the pile.

Finally, the pile is covered with plastic to hold in heat and help speed the process. Within one summer, the soil can be treated.

### ***What are the advantages of soil composting?***

Compared to other methods of treating petroleum-contaminated soil, composting is almost certainly the most cost-effective. And, as with landfarming, the Minnesota Pollution Control Agency (MPCA) has found composting to be an environmentally safe and effective treatment method. Compared to landfarming, however, soil composting requires less area. In many cases, where the amount of soil to be treated is relatively small, the soil can be treated on the premises.

The other most common methods of treating contaminated soil are thermal treatment and "in-situ" bioremediation. Thermal treatment essentially burns the petroleum components out of the soil and thermal treatment facilities are permitted by the MPCA.

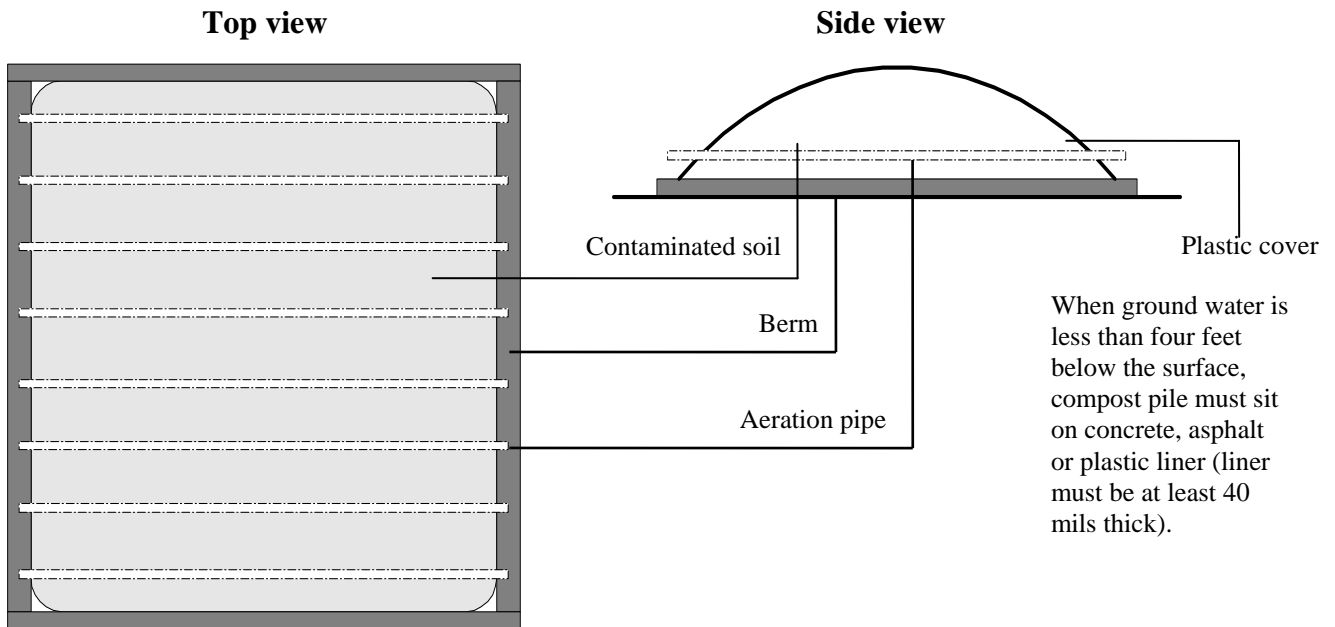
Like composting, in-situ bioremediation also involves using microorganisms to decompose the petroleum products, but the process is accomplished without removing the soil from the ground. In general, this type of remediation is more expensive than landfarming or composting and can only be used in areas where soil conditions are suitable.

**Are there any regulations that govern who can compost soil and where they do it?**

The MPCA has established a general permit to allow composting of petroleum contaminated soil. Tank owners and operators that have soil that needs to be treated are encouraged to do so on their own property as long as the location meets the conditions of the permit and it passes all local approval. An environmental consultant is normally used to help process, monitor, and ultimately close the compost facility.

The public generally appears interested in composting because it is a controlled and low-cost treatment method. For more information on composting or to receive an application to compost petroleum-contaminated soil, contact the MPCA office nearest you. For mailing addresses or phone numbers, see the MPCA web page at <http://www.pca.state.mn.us/netscape4.html>, or call 1-800-657-3864.

**Typical Soil-Composting Pile Construction**



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