



## **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)

### **Composting of Petroleum Contaminated Soil**

Guidance Document 3-13

The Minnesota Pollution Control Agency (MPCA) requires that excavated petroleum contaminated soil be treated or disposed of properly. Composting is a safe and effective method that takes advantage of naturally occurring micro-organisms to biodegrade petroleum.

The MPCA defines composting as the controlled microbial degradation of petroleum contaminated soil. This is usually done by building a compost pile (sometimes referred to as a bio-pile) which is a pile of petroleum contaminated soil that is constructed in such a way that provides optimum conditions for microbial growth through the addition of oxygen, water and nutrients. Pipes distribute oxygen through the pile. Bulking agents such as wood chips, sawdust or straw can also be added to the pile to facilitate the movement of air through the pile. Nutrients in the form of fertilizers or manure may also be added. The pile is watered or kept moist. The pile is covered to keep moisture loss to a minimum, to keep the pile warm and to prevent volatilization. Under these conditions, micro-organisms, such as bacteria and fungi, flourish. These organisms then break down the petroleum wastes by consuming them and transforming them into harmless substances consisting mainly of carbon dioxide, water and fatty acids.

Composting of petroleum contaminated soil is regulated by the Solid Waste Rules and is required to be permitted. Usually, the permitting process is an involved and often lengthy process that can take up to six months. However, the MPCA has developed a general permit to cover composting of petroleum contaminated soil at facilities that meet the following conditions (applicability criteria):

- A. The proposed "Petroleum Contaminated Soil Composting Facility" (Facility) will only be used for the composting of petroleum contaminated soil.
- B. No more than 1,500 cubic yards of petroleum contaminated soil will ever be allowed at the proposed Facility. (this includes all soil that is in the treatment process, stockpiled on site, or has been spread on the site). A Facility must not be located within one-quarter mile, edge to edge, of another Facility unless the combined capacity is less than 1,500 cubic yards. An exception for additional soil at any facility may be allowed only upon MPCA approval for petroleum contaminated soil excavated within a limited time frame from a single source.
- C. The facility meets the following setback distances:
  1. 200 feet from an intermittent stream, drainage ditch, tile drain inlet, sinkhole, known underground cave, and the ordinary high water level of a surface water or wetland;
  2. 500 feet from a place of habitation, livestock area, residential development or recreational area without written permission from the property owner;

3. 200 feet from any private water supply well, and 1000 feet from any public water supply well;
  4. 200 feet from an adjacent property without written permission; and
  5. Separation distance of at least ten feet to the seasonal high water table or fracture bedrock being utilized for potable water in the area, with a minimum of three feet of impervious soil. This can be as listed in the Soil Conservation Survey or as verified by a certified soil scientist, geologist, or hydrogeologist, with mapping experience based on an on-site investigation. To classify sediments and estimate hydraulic conductivity, collect samples for grain size analysis according to American Society for Testing and Materials Method D 422, "Standard Test Method of Particle Size Analysis of Soils". Collect and analyze a minimum of three soil samples from different locations/horizons that appear to have low conductivity. Provide the documentation of depths, locations, and results of hydraulic conductivity determinations.
- D. Infiltration to the ground water and surface runoff must be controlled by locating the compost pile(s) on an impervious surface and covering with an impervious cover, if the site is located in an area not meeting the separation distance as described in Part C, section 5.
- E. At Facilities where the compost piles are not covered with an impervious cover, run-on and run-off must be controlled by the use of berms, as necessary.
- F. The Facility is not located in a 100-year floodplain.
- G. The Facility is not located in an area with a slope of greater than two percent.

In addition to the applicability criteria above, persons wishing to compost petroleum contaminated soil at any Facility under this general permit also need to submit plans and specifications for their proposed Facility which show that they can meet all the requirements of the general permit such as:

- A. An operation and maintenance plan that ensures the compost pile(s) will be watered, aerated and fertilized as necessary to ensure optimal microbial activity.
- B. A description of run-on and run-off controls to be used.
- C. A plan for the end use and location of the composted material following confirmation of treatment. Compost may be used as controlled fill (except near residences, wetlands or other sensitive areas), spread on site or other purposes as approved by the MPCA Commissioner.

MPCA staff then reviews each application to determine if the facility can be permitted under the general permit for composting of petroleum contaminated soil. If the information contained in the application for a composting general permit indicates that the Facility meets the applicability criteria listed above and can meet the requirements of the permit, the MPCA will send a letter of approval and a copy of the general permit to the applicant, who then becomes a permittee. The permit is a legal, binding, enforceable document.

MINNESOTA POLLUTION CONTROL AGENCY  
520 LAFAYETTE ROAD NORTH  
ST. PAUL, MINNESOTA 55155-4194

**General Permit Application for the Construction and Operation of  
A Petroleum Contaminated Soil Composting Facility (Form A)**

Persons wishing to compost petroleum contaminated soil at any Facility under this general permit shall complete this permit application and submit it to the Leaking Petroleum Storage Tank program of the Minnesota Pollution Control Agency (MPCA) and meet all the applicable criteria listed in Guidance Document 3-14 *The Facts About Composting Petroleum Contaminated Soil*. For facilities that do not meet the applicable requirements, MPCA staff will perform additional evaluation for issuance of an individual Solid Waste Permit under Minn. R. chs. 7000, 7001, and 7035.

For pre-approval of a site for composting, number VII., Petroleum Contaminated Soil Sampling Results, is not required. However, for batch approval of leaded gasoline or used oil, number VII. part C. is required. If the applicant is anticipating composting soil, it is recommended you plan ahead by completing this form.

Please note that numbers III. and IV. do not need to be completed if you have already obtained a permit for the composting facility and you are using this application only for subsequent batch approval. To submit follow-up soil monitoring results for composted petroleum contaminated soil, use Form B attached at the end of this document.

**I. BACKGROUND**

**A. Responsible Party for Soil**

Contact:  
Company name:  
Street/Box:  
City, Zip:  
State:  
Telephone:

**B. Site from which soil originated**

\*MPCA Site ID#: LEAK0000  
\*if applicable  
Company name:  
Street:  
City, Zip:  
County:  
State:

**C. Landowner of Compost Site**

Name:  
Street/Box:  
City, Zip:  
Telephone:

**D. Composting Facility Operator**

Name:  
Street/Box:  
City, Zip:  
Telephone:

Signature:

\_\_\_\_\_

Signature:

\_\_\_\_\_

Date:

\_\_\_\_\_

Date:

\_\_\_\_\_

**E. Consultant (or other) who has completed this application:**

Name:  
Business name:  
Street/Box:  
City, State Zip:  
Telephone:

**F. Indicate who will be responsible for the follow-up monitoring:**

Name:  
Business name:  
Street/Box:  
City, State Zip:  
Telephone:

**II. SOIL STORAGE INFORMATION**

**A. Current location of proposed soil batch to be composted (check one):**

- stockpiled on storage area at proposed composting site
- stockpiled on the property from which the soil originated
- not yet excavated
- other: explain

**B. Date soil stockpiled (if applicable):**

**C. Type of stockpile run-off controls in place (if applicable):**

**D. Volume of soil of proposed batch to be composted:            cubic yards**

**E. Projected date of soil composting:**

**F. Soil type to be treated (i.e.: sand, loamy clay):**

**III. PROPOSED LOCATION OF COMPOST FACILITY:**

City or Town:  
Address:  
County:  
Township:

Legal Description of Compost Treatment Site (rural sites only):

          ¼ of           ¼ of Section           , Township           , Range           , Township  
Name           , County  
LAT           LONG

#### IV. COMPOST FACILITY CHARACTERISTICS

Complete the following:

- A. Soil volume amount to be permitted at this facility  
(1500 cubic yards maximum per facility)
- B. Distance to nearest intermittent stream, drainage ditch,  
tile drain inlet, or the ordinary high water level of a stream,  
river, sinkhole, lake pond, wetland or flowage:
- C. Distance to nearest place of habitation, livestock area, to  
nearest residential development or recreational area:
- D. Distance to nearest private water supply;  
and public water supply:
- E. Distance to nearest property line:
- F. Site Slope:
- G. Depth to seasonal high water table or bedrock if not on an  
impervious surface (Soil Conservation Survey interpretations,  
excavation observations, or boring logs);  
Thickness of impervious soil (silts or clays with a hydraulic  
conductivity of less than  $10^{-4}$  cm/sec.):
- H. Is this site located within 500 feet of the ordinary high levels of  
a trout stream, trout lake, or outstanding resource value water  
(or an intermittent stream, drainage ditch, or tile drainage inlet  
that directly outlets to one) as indicated in part 7037.1000, subpart 2?  
 YES     NO
- I. Has this site previously been used for treatment or disposal of  
wastes (not including petroleum contaminated soil)?            YES     NO  
If YES, explain.

## **V. COMPOST METHOD AND MONITORING**

Attach a compost system description that includes the following:

- A.** Copy of county plat map or standard 7.5 minute series quadrangle map with clear road directions to the site.
- B.** A schematic drawing (including cross section of the compost system which includes; compost pile dimensions, perforated pipe spacing, if used, poly thickness (should be at least 8 mil) and coloration.
- C.** A site map (scale: 1 inch =10 to 50 feet) indicating the following:
  - borders of treatment site (indicate dimensions of each side in feet)
  - delineate proposed area for this batch of soil (in feet)
  - delineate all other areas previously used for treatment (in feet and indicate with leak site number)
  - delineate all other features within 500 feet, including surface water, wetlands, property lines, buildings, sewers, and wells
  - north arrow
  - if there is any slope greater than two percent within 500 feet, provide a cross sectional map of the area within 500 feet.
- D.** An operation and maintenance plan that ensures the compost pile(s) will be watered, aerated and fertilized as necessary to ensure optimal microbial activity.
- E.** Estimated ratio of soil to bulking agent and/or nutrients, if proposed, and the procedure that will be used for the mixing bulking agent and/or nutrients.
- F.** A description of run-on and run-off controls to be used.
- G.** A description of the field method for monitoring moisture.
- H.** A plan for the end use and location of the composted material following confirmation of treatment. Compost may be used as controlled fill (except near residences, wetlands or other sensitive areas), spread on site or other purposes as approved by the MPCA Commissioner.

## **VI. INFORMATION REGARDING PREVIOUSLY APPROVED CONTAMINATED SOIL**

Provide the following for contaminated soil that has been composted or land applied at this treatment site:

Site (name, city)	Leak Site or Spill Site Number (if applicable)	Soil Volume (cu. yds.)
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Total soil volume of Sites already composted at this facility: \_\_\_\_\_ cubic yards

**VII. PETROLEUM CONTAMINATED SOIL SAMPLING RESULTS**

- A. Type(s) of petroleum contamination (i.e.: unleaded gas, regular gas, diesel fuel, etc.):
  
- B. Indicate method of sample soil collection. (i.e.: Soil boring, stockpile sample or other):
  
- C. Provide analytical results for the petroleum contaminated soil that is to be composted, if available (analytical results are required if the soil is contaminated with used or waste oil). Attach analytical results to the application.

Sample Code	GRO or DRO mg/kg (circle one)	Benzene mg/kg	Ethyl- benzene mg/kg	Toluene mg/kg	Xylene mg/kg	Lead mg/kg
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Average

## VIII. NOTIFICATION OF COUNTY AND LOCAL GOVERNMENTS

- A. Prior to or concurrent to submittal of this application to the MPCA, the applicant must submit a copy of the application to the appropriate county and local officials and be able to provide a copy of certified mail receipts to the MPCA. Please provide the names and addresses of the officials notified with this application below:

County official:	Township, City, or Tribal official:
Title:	Title:
Street/Box:	Street/Box:
City, Zip:	City, Zip:
Telephone:	Telephone:

- B. The applicant is responsible for obtaining all necessary county and local approvals. The issuance of a Solid Waste General Permit allowing a petroleum contaminated soil composting facility does not release the applicant from the duty to comply with applicable county and local regulations.
- C. Please provide copies of written permission from adjacent land owners, if compost treatment is to be done closer than 200 feet from their property or 500 feet from places of habitation, livestock areas, residential developments, or recreational areas.

## IX. MPCA REVIEW AND APPROVAL

All applications shall be reviewed for completeness and adequacy by MPCA staff. If the application is found to be incomplete or inadequate, a letter detailing staff comments will be sent to you after staff review has been completed. Further processing of the application will be suspended until the applicant has provided the necessary information or resolved the inadequacy. Contaminated soil may NOT BE COMPOSTED until this application is submitted and a permit obtained.

## X. CERTIFICATION

I certify under penalty of law that I am familiar with this document and all attachments submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information I believe the submitted information is true, accurate and complete. I understand that under Minn. R. 7000.0300 I may be subject to civil penalty of up to \$10,000 for failure to act in good faith and complete truthfulness, accuracy, disclosure and candor.

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Applicant's Signature

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Date



## XI. SUBMISSION OF THE APPLICATION

Mail completed application and all attachments to the MPCA Composting Coordinator, Gary Zarling at (651) 297-8598. For the correct mailing address, see the MPCA web page at <http://www.pca.state.mn.us/netscape4.html>, or call the telephone number below.

### *Web pages and phone numbers*

MPCA staff	<a href="http://data.pca.state.mn.us/pca/emplsearch.html">http://data.pca.state.mn.us/pca/emplsearch.html</a>
MPCA toll free	<b>1-800-657-3864</b>
Petroleum Remediation Program web page	<a href="http://www.pca.state.mn.us/programs/lust_p.html">http://www.pca.state.mn.us/programs/lust_p.html</a>
MPCA Infor. Request	<a href="http://www.pca.state.mn.us/about/inforequest.html">http://www.pca.state.mn.us/about/inforequest.html</a>
PetroFund Web Page	<a href="http://www.commerce.state.mn.us/mainpf.htm">http://www.commerce.state.mn.us/mainpf.htm</a>
PetroFund Phone	<b>651-297-1119, or 1-800-638-0418</b>
<b>State Duty Officer</b>	<b>651-649-5451 or 1-800-422-0798</b>

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TTY users call 651/282-5332 or 1-800/657-3864 (voice/TTY)

Printed on recycled paper containing at least 10 percent from paper recycled by consumers.

**Soil Monitoring Results For Composted Petroleum Contaminated Soil**  
**(Form B)**

**Compost Facility Information**

<b>ID#</b>	
<b>Contact Name and Phone #</b>	( ) -
<b>Facility Name</b>	
<b>Address</b>	
<b>City or Township, Zip</b>	

**Soil Batch Information**

<b>Site ID# (if applicable)</b>	
<b>RP Name and Phone #</b>	( ) -
<b>Site Name</b>	
<b>Address</b>	
<b>City, State Zip</b>	

<b>Volume of Soil Composted (yds)</b>	
<b>Date Composting of Soil Began</b>	
<b>Number of Soil Samples Collected</b>	
<b>Date Soil Samples Were Collected</b>	
<b>Date Soil Samples Were Analyzed</b>	

**Soil Sample Results**

<b>Sample Number</b>	<b>DRO (mg/kg)</b>	<b>GRO (mg/kg)</b>
1		
2		
3		
4		
5		
6		
7		
8		
9		

Along with the above information, please include the following:

- A map indicating the location from where the soil samples were collected
- Copies of the analytical results from the laboratory
- Copy of the soil sample chain of custody

<b>Name of Person Completing This Form (Print)</b>	
<b>Signature of Person Completing This Form</b>	
<b>Date</b>	