



ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
300 SOWER BOULEVARD, SECOND FLOOR
FRANKFORT, KENTUCKY 40601
TELEPHONE NUMBER (502)564-6716

**APPLICATION FOR A
SPECIAL WASTE
LANDFARMING FACILITY PERMIT
DEP 7021B (November 2016)**

GENERAL INSTRUCTIONS

1. **USE OF THIS APPLICATION** - This form is an application for a landfarming permit to allow the Cabinet to determine if the proposed project is consistent with waste management area requirements and to review the potential effects on human health and the environment.
2. **PREPARATION ASSISTANCE** - Questions regarding this application form should be directed in writing to the Division of Waste Management, Solid Waste Branch, at the address provided above, or by calling (502)564-6716.
3. **SUBMISSION** - Submit the original and three (3) copies of the completed application to the Division of Waste Management at the address listed above. If an item does not appear to be applicable to your application, write "N/A" for not applicable.
4. **FILING FEES** - Applicants, except publicly owned facilities, must submit filing fees at the time of application submittal in accordance with 401 KAR 45:250.
5. **LAWS AND REGULATIONS** - Applicants are expected to understand and comply with all laws and regulations applicable to the proposed landfarming facility.

***SPECIAL WASTE LANDFARMING FACILITY
PERMIT APPLICATION***

TABLE OF CONTENTS

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LANDFARMING APPLICATION

ATTACHMENTS

Attachment	Page No.
1. Landfarming lease guidelines	_____
2. Property deed(s) or landfarming lease(s)	_____
3. Site(s) location (if needed)	_____
4. Financial assurance statement	_____
5. Application methods narrative(if needed)	_____
6. Waste storage provisions narrative(if needed)	_____
7. Two year application schedule and cropping Plan	_____
8. Subplot boundaries narrative(if needed)	_____
9. Worksheet for calculating application fees	_____
10. Enlarged topographic map	_____
11. ● Narrative geologic description(s)	_____
● Soil properties form	_____
12. Soil Analysis	_____
13. Narrative sampling procedures	_____
14. Fertilizer recommendations	_____
15. Groundwater quality assurance plan	_____
16. Run-on/Run-off control narrative	_____

**KENTUCKY DIVISION OF WASTE MANAGEMENT
APPLICATION FOR A LANDFARMING FACILITY PERMIT**

A. GENERAL INFORMATION

APPLICATION NUMBER _____

DATE _____ COUNTY _____

FEE SUBMITTED _____

METHOD OF PAYMENT: _____ CHECK _____ CERTIFIED CHECK _____

NO. _____

1. Applicant _____

Address _____

City _____ State _____ Zip Code _____

Telephone Number (____) _____ - _____

Contact Person _____

2. Mailing Address (if different from above)

Address _____

City _____ State _____ Zip Code _____

Telephone Number (____) _____ - _____

Contact Person/Process Agent _____

3. Corrections to application are to be made by:

Name _____

Address _____

City _____ State _____ Zip Code _____

Telephone Number (____) _____ - _____

4. Applicant legal status: _____ Government _____ Private

5. Do you now hold, or have you held, any other permit or approval to dispose of waste from the Division, including a landfarming permit, registered permit-by-rule, sludge giveaway, or permit modification to landfill? If so, state type, permit number if applicable, and date permit or approval was granted. If you have been granted approval to landfill your sludge, also indicate the landfill name and permit number.

Type	Permit Number if Applicable	Date of Approval	Landfill Name if Applicable	Landfill Permit Number if Applicable

6. Type of Application:

 New

 Renewal (Permit Number #)

 Modification (Permit Number #)

7. Provide a copy of the property deed(s), or landfarming lease(s) if the applicant is not the property owner. The lease must conform to the "Landfarm Lease" in the back of application. Label as Attachment 2. Refer to the "Landfarming Lease" in Attachment 1.

8. Describe the location of the proposed landfarming site(s), official mailing address and directions to the sites using highways and roads. Label as Attachment 3.

9. Provide a statement of financial assurance in accordance with 401 KAR 45:080. Label as Attachment 5.

D. SLUDGE APPLICATION INFORMATION

1. Method of Application:

 Subsurface Injection

 Surface Application Without Incorporation

 Surface Application With Incorporation

2. Describe the application method, equipment and transportation method from the point of waste production to the proposed site. The application method must address the rate and manner of discharge from the truck. Also describe the distance and route for transporting the sludge. If additional pages are needed, label as Attachment 6.

3. Describe waste storage provisions or alternate disposal methods to be used during adverse weather conditions or breakdowns of equipment. Address storage capacities and locations of all structures, including tanks. If additional pages are needed, label at Attachment 7.

4. Describe the anticipated cropping program for each subplot and the schedule of waste application for each subplot for a period of two (2) years, and calculate an application rate for each crop grown. Complete the two year cropping plan in Attachment 8.

5. Provide the name, address, telephone number and certification number of the Kentucky certified landfarming operator(s) of the proposed landfarming site:

Name	Address	Telephone Number	Certification Number

6. Describe how the subplot boundaries shall be marked to ensure their identification during the life of the permit. If additional pages are needed, label as Attachment 9.

7. Determine the application rate for each crop/subplot, using the forms provided, label as Attachment 10. Use the average of the sludge analysis submitted in the Notice of Intent to Apply for completing the formulas.

B. GEOLOGIC SITE INFORMATION

1. Provide, as Attachment 11, an enlargement of a current United States Geological Survey topographic map. The enlarged map shall have a minimum scale of one (1) inch equals four hundred (400) feet and the contour interval as published. This map shall contain the following:
 - a. The property lines and boundaries of the proposed site.
 - b. Proposed land application unit and subplots, numbered sequentially, within the land application boundary;
 - c. Access and proposed or existing roads;
 - d. Streams, areas of standing water such as lakes, ponds, or marshes, and sinkholes within 1,000 feet of the proposed site boundary;
 - e. All existing manmade features within 1,000 feet of the proposed site boundary including structures, public roads, utilities, and water wells;
 - f. The boundaries of one hundred (100) year floodplain if applicable.
 - g. The delineation of existing site surface water drainage, and existing and proposed run-off/run-on structures;
 - h. Steepest slope of each sub-plot (numerical value) on the proposed landfarming site;
 - i. Boundaries of any and all buffer zones with the distance marked;
 - j. Proposed surface and groundwater monitoring locations; and
 - k. Map legend showing all symbols used, total site acreage, and quadrangle name.
2. Provide, as Attachment 12, a narrative soil and geologic description of the proposed site. Include:
 - a. A physical description of the soils in the uppermost five (5) feet. Soils information may be obtained from a current USDA Soil Conservation Service Soil Survey or a field investigation.

- b. The surface and subsurface geology including depth to bedrock, depth to seasonal high groundwater table, karst formations, and names and descriptions of geologic formations. Complete Attachment 12, entitled "Soil Properties" in addition to the narrative.
3. Provide a copy of a current soil analysis from each proposed subplot. Parameters must include: pH(both water and buffer), total phosphorus total potassium, cadmium, copper, lead, nickel, zinc, cation exchange capacity (CEC) and polychlorinated biphenyls (PCBs). Label as Attachment 13. The soils analysis for pH must be recent (within 6 months) and from each subplot. The sample must be a composite of at least three (3) plugs per acre and represent a subplot of no more than 20 acres. The applicant may choose another sampling plan, in writing, from the USDA Soil Conservation Service or county extension agent.
4. Describe procedure and equipment used to collect soil samples. Label as Attachment 14.
5. Provide written fertilizer recommendations from the county agricultural extension agent for crop nitrogen, phosphorus, potassium, and lime requirements. Label as Attachment 15.
6. Submit a groundwater quality assurance plan as Attachment 16. The plan shall include but not be limited to:

Submit a Groundwater Quality Assurance Plan. The Plan must include a narrative description of geology/hydrology of the area based on a survey of existing information and a reconnaissance of the site. This should include a description of geologic units, noting any potential water bearing units, any confining units, structural dip and potential groundwater flow direction based on topography and dip.

- a. A description of the surface and subsurface geology of the site; and
- b. A description of the hydrologic characteristics of the site.

Note: Applicants with Type A sludge shall also submit a groundwater monitoring plan as Attachment 16A, to include location and specification of wells, monitoring parameters, and monitoring schedules in accordance with 401 KAR 45:160.

7. Describe how surface precipitation run-off/run-on shall be controlled to minimize the possibility of applied special waste contaminating nearby surface water or adjacent land areas. Label as Attachment 17.

F. SURFACE WATER, GROUNDWATER, AND CORRECTIVE ACTION

1. Submit as Attachment 18, a Surface Water Monitoring Plan as required by 401 KAR 45:110 and 401 KAR 45:160. At a minimum, the plan must include:
 - a. The proposed locations of the monitoring points shown on the site plans.
 - b. A written description of how the monitoring point locations ensure that sampling will characterize the quality of water unaffected by the landfarming facility, as well as determining if water leaving the landfarming facility as surface drainage is contaminated with leachate.
 - c. A description of sampling protocol and analytical parameters.
 - d. A monitoring schedule and list of analytical parameters.
 - e. A sample form for reporting results of the analyses to the Division.
 - f. Documentation that the applicant currently holds or has applied for a K.P.D.E.S. permit for all structures to be used to control stormwater run-off and all point source discharges.
 - g. Provide the information requested in Attachment 18A, concerning location of the monitoring points.
2. Submit as Attachment 19, a Groundwater Monitoring Plan that meets the requirements of 401 KAR 45:110 and 401 KAR 45:160. At a minimum that plan must provide the following information:
 - a. A list and description of the specific aquifer(s) proposed for monitoring.
 - b. The number, location, and depth of proposed monitoring points. Show the location of the monitoring points on the site plans.
 - c. Provide a brief discussion of the groundwater quality that currently exists based on the Groundwater Quality Characterization required in 401 KAR 45:160.

- d. Provide a Groundwater Sampling and Analysis Plan which describes the procedures and techniques designed to accurately measure groundwater quality upgradient and downgradient of the waste disposal area. Include a discussion regarding the chain of custody, as well as field and lab quality assurance and quality control.
- e. Provide a monitoring schedule and list of analytical parameters in accordance with 401 KAR 45:160 Section 8.
- f. Provide monitoring well construction specifications which meet the requirements of 401 KAR 45:160 Section 3.
- g. Is the proposed special waste disposal site located in karst terrain? Yes No

If yes, the groundwater monitoring plan must include dye trace studies to determine the nature and extent of karst drainage beneath the site and proposed monitoring locations.
- h. Provide the information requested in Attachment 19A, concerning proposed well locations and depth.

G. PERMIT PREPARATION INFORMATION

Complete the following information if the application was not prepared by applicant:

- 1. Consultant Name _____
Address _____
City _____ State _____ Zip Code _____
Phone Number (____) _____ - _____
Prepared by _____
Kentucky Registration No. (if engineer) _____

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2. Geologist, Agronomist, Soil Scientist(or Other) _____

Address _____

City _____ State _____ Zip Code _____

Company Name _____

Phone Number (____) _____ - _____

H. PUBLIC NOTICES

Public notices are required for a new site or a significant expansion to an existing site in accordance with KRS 224.40-310. Draft notices are found in Attachments 20 & 21. Complete the public notice forms; however, only those applicants notified by correspondence from the Cabinet may publish the notices.

I. CERTIFICATION

1. Sign the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for such violations."

Signature and title of mayor, corporate officer or authorized agent (401 KAR 45:030 Section 10).

(Type or Print) Name and Title

Date

Subscribed and sworn to before me by _____

this the _____ day of _____, 19____.

Notary Public Signature _____

My Commission Expires _____

ATTACHMENT 1

Landfarming Lease

The following items must be addressed in the landfarming lease:

1. The lease specifies that the area of land covered under the lease will receive treated municipal sewage sludge.
2. A brief description of the site location and a map showing the boundaries of the proposed application zones.
3. The lease must include the following restrictions pursuant to 401 KAR 45:100:
 - Tobacco shall not be raised or harvested on land where wastewater treatment plant sludge has been applied within one year (i.e., sludge applied in 1990, tobacco may not be raised until 1991).
 - Grazing - Dairy cattle (cows and heifers) or any lactating animals may not graze for six months after the application of wastewater treatment plant sludge. Other livestock may not graze for three months after application of wastewater treatment plant sludge.
 - Leafy vegetables and root crops for direct human consumption shall not be harvested within twelve months of wastewater treatment plant sludge application. Other crops (i.e., corn, wheat, grain sale crops) for direct human consumption shall not be harvested within two months of wastewater treatment plan sludge application.
 - The general public shall not be allowed on land where sludge has been applied for twelve months.
 - If soil monitoring indicated cumulative concentrations of contaminants greater than that allowed by regulation, a notice shall be recorded in the deed stating that the land has received concentrations exceeding permitted levels and that food chain crops shall not be grown due to possible health hazards.
 - A farm cropping plan is required for each sub-plot where sludge is to be applied. The farmer must notify the permit holder of any cropping change and the permit holder of any cropping change and the permit holder must in turn notify the Division. The landowner agrees to harvest crops as indicated in this application and/or permit modifications.

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4. Lease allows for a two year right of reentry following closure of the landfarming site to allow the lessor or representative of the Division to conduct any observations, tests, or monitoring which may be needed.
5. Lease must contain language that addresses the terms established between the landowner and the lessor for termination of the lease agreement.

**ATTACHMENT 9
WORKSHEET FOR CALCULATING APPLICATION RATES**

SUBPLOT # _____ CROP _____
 SLUDGE COMPOSITION (Parameter in dry weight ppm + 10,000 = %)

Average of last year's sludge analysis or the two (2) most recent analyses used for classification)

Total Kjeldahl Nitrogen (TKN)	_____ ÷ 10,000 = _____	%
Ammonium Nitrogen (NH ₄ N)	_____ ÷ 10,000 = _____	%
Nitrate Nitrogen (NO ₃ N)	_____ ÷ 10,000 = _____	%
Total Phosphorus	_____ ÷ 10,000 = _____	%
Total Potassium	_____ ÷ 10,000 = _____	%

1. Percent Available Organic Nitrogen = (% TKN) · (%NH₄N) · (%NO₃N)
 _____ = (_____) - (_____) - (_____)

2. Available Nitrogen in waste:

(a) Incorporation:

(%NH₄NX20) + (%NO₃NX20) + (% available organic NX4) = lbs. available N/ton
 (_____ X20) + (_____ X20) + (_____ X4) = _____ lbs. available N/ton

(b) Surface Application:

(%NH₄NX10) + (%NO₃NX20) + (% available organic NX4) = lbs. available N/ton
 (_____ X10) + (_____ X20) + (_____ X4) = _____ lbs. available N/ton

3. Residual Nitrogen (N): _____

(Calculate Residual N by utilizing the formulas found on the Residual N worksheet)

4. Annual Application Rate:

(a) (Crop N requirement - Residual N)/Acre ÷ lbs. available N/ton = Dry tons/acre

(_____ - _____) ÷ _____ = _____ Dry Tons/acre

(b) 0.44 lbs. of available Cd/acre ÷ (mg./kg of Cd per sample X 0.002) = Dry Tons/acre

_____ ÷ (_____ X 0.002) = _____ Dry Tons/acre

Annual Application Rate: (LOWER of (a) or (b).)

Annual Application Rate = _____

5. Conversion Formula: Dry Tons to Wet Gallons

(Tons of sludge x 20000) ÷ (8.34 x solids in the sludge/100)
= wet gallons/acre

(_____ X20000) ÷ (8.34 x _____) = _____ wet
gallons/acre.

6. Additional Phosphorus and Potassium needed:

(a) Phosphorus (P_2O_5) in waste:

Tons waste/acre (from 4a or 4b) x % P in waste x 45.8 = lbs.
 P_2O_5 added/acre

_____ X _____ X45.8 = _____ lbs. P_2O_5 /added acre

(b) Additional P_2O_5 fertilizer needed:

Total Phosphorous (P_2O_5) needed/acre - P_2O_5 sludge = lbs. of
additional P_2O_5 /acre

* A negative answer means no additional P_2O_5 fertilizer is
needed.

(c) Potassium (K_2O) in waste:

Tons waste/acre (from 4a or 4b) X % K in waste X 24 =
lbs. K_2O added/acre

_____ X _____ X24= _____ lbs. K_2O added/acre

(d) Additional K_2O fertilizer needed:

Total Potassium (K_2O) needed/acre - K_2O added from sludge =
lbs. of additional K_2O /acre

_____ - _____ = _____ lbs. of additional
 K_2O /acre

* A negative answer means no additional K_2O fertilizer is
needed.

** Nitrogen required - (lbs. available N/Ton X maximum tons of
waste to be applied/acre) = Lbs. Additional Fertilizer
Nitrogen per acre. (Additional nitrogen may be needed by
fertilization if the annual application rate is limited by
cadmium.)

7. Maximum Amount of Waste Allowable per Acre:

Obtain maximum amount of Pb, Cd, Cu, Ni, and Zn allowed based on the Cation Exchange Capacity of the soil from 401 KAR 45:100 Section 6 (23). If sludge has been previously applied, calculate the remaining lifetime limits by subtracting the total amount of each metal applied from the maximum allowed found in 401 Kar 45:100 Section 16 (23).

Cadmium (Cd):

Maximum Cd allowable/acre + (dry mg/kg of Cd in sample X 0.002) = tons waste/acre

_____ ÷ (_____ x 0.002) = _____ tons waste/acre

Copper (Cu):

Maximum Cu allowable/acre + (dry mg/kg of Cu in sample X 0.002) = tons waste/acre

_____ ÷ (_____ x 0.002) = _____ tons waste/acre

Lead (Pb):

Maximum Pb allowable/acre + (dry mg/kg of Pb in sample X 0.002) = tons waste/acre

_____ ÷ (_____ x 0.002) = _____ tons waste/acre

Nickel (Ni):

Maximum Ni allowable/acre + (dry mg/kg of Ni in sample X 0.002) = tons waste/acre

_____ ÷ (_____ x 0.002) = _____ tons waste/acre

Zinc (Zn):

Maximum Zn allowable/acre + (dry mg/kg of Zn in sample X 0.002) = tons waste/acre

_____ ÷ (_____ x 0.002) = _____ tons waste/acre

Life in Number of years = Lowest amount from Item 7 in tons/acre ÷ tons waste applied/acre/year

_____ ÷ _____ = _____ years

8. Number of years that waste can be applied: _____

RESIDUAL NITROGEN WORKSHEET

<u>Years Since Last Application</u>	<u>Organic Nitrogen Content of Sludge</u>					
	2.0	2.5	3.0	3.5	4.0	4.5
	<u>Lbs. Nitrogen released per ton of sludge added</u>					
1	1.0	1.2	1.4	1.7	1.9	2.2
2	0.9	1.2	1.4	1.6	1.8	2.1
3	0.9	1.1	1.3	1.5	1.7	2.0

Calculations should be done for each sub-plot which has received sludge

One year ago:

Lbs. of Nitrogen released/ton of sludge x tons of sludge applied = Residual N (one year)

_____ x _____ = _____ Residual N (one year)

Two years ago:

Lbs. of Nitrogen released/ton of sludge x tons of sludge applied = Residual N (two years)

_____ x _____ = _____ Residual N (two years)

Three years ago:

Lbs. of Nitrogen released/ton of sludge x tons of sludge applied = Residual N (three years)

_____ x _____ = _____ Residual N (three years)

Total Residual Nitrogen:

Residual N (one year) + Residual N (two Years) + Residual N (three years) = Total Residual Nitrogen

_____ + _____ + _____ = _____ = Total Residual Nitrogen

NOTE: To calculate residual nitrogen for year 2 and 3, if necessary you must find the organic nitrogen content of the sludge from each year. Refer to your previous annual review.

ATTACHMENT 12
SOILS PROPERTIES FORM

SOIL PROPERTIES WITHIN 60" OF SURFACE	SERIES 1	SERIES 2	SERIES 3
Soil Series			
USDA Map Symbol			
Covers Approximate % of Whole Area			
Erodibility Potential			
Drainage Class			
Depth to Bedrock			
Depth to Season High Water Table			

ATTACHMENT 18A

SURFACE WATER MONITORING PLAN

Provide the information requested below:

Monitoring Station I.D.	Location Description	Latitude	Longitude
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ATTACHMENT 19A

GROUNDWATER MONITORING WELL

LOCATION AND DEPTH

Provide the information requested in the chart below:

MONITORING STATION I.D.	LATITUDE	LONGITUDE	STATION TYPE WELL OR SPRING	AQUIFER	ELEVATION OF SPRING OR TOP OF WELL CASING	DEPTH OF	DEPTH OF WATER
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Attachment 20

PUBLIC NOTICE

PURSUANT TO APPLICATION NO. _____

The Natural Resources and Environmental Protection Cabinet, Division of Waste Management, has received a special waste landfarming facility permit application from:

Name of Applicant _____

Name of Facility _____

Address _____

City _____ State _____ Zip Code _____

This application, if approved, would allow the construction of the landfarming facility to accept the following types of waste and the following activities: _____

The proposed facility may be accessed from _____

by travelling _____

Additional information regarding this application may be obtained from:

Contact Person _____

Address _____

City _____ State _____ Zip Code _____

Phone No. (____) _____ - _____

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The permit application is being processed at the following location:

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, Kentucky 40601

Within thirty (30) days of the publication of this notice, any person who wishes to comment on the application may submit written comments, and, if desired, request from the Cabinet a public meeting.

Please refer to Application No. _____ on all correspondence.

Publication pursuant to KRS 224.40-310.

Attachment 24

PUBLIC NOTICE

PURSUANT TO APPLICATION NO. _____

The Natural Resources and Environmental Protection Cabinet, Division of Waste Management, has received a special waste landfarming facility permit application from, and has prepared a draft permit for:

Name of Applicant _____

Name of Facility _____

Address _____

City _____ State _____ Zip Code _____

This application, if approved, would allow the construction of the landfarming facility to accept the following types of waste and the following activities: _____

The proposed facility may be accessed from _____

by travelling _____

Additional information regarding this application may be obtained from:

Contact Person _____

Address _____

City _____ State _____ Zip Code _____

Phone No. (____) _____ - _____

All data submitted by the applicant and other documents concerning this application are available for public inspection during normal business hours at the following location:

Office _____

Address _____

City _____ State _____ Zip Code _____

The permit application is being processed at the following location:

Division of Waste Management
Solid Waste Branch
14 Reilly Road
Frankfort, Kentucky 40601

A public hearing has been scheduled to receive public comments and will be conducted at the following location and time:

Place _____

Address _____

City _____ State _____ Zip Code _____

From _____ To _____

Any person who wishes to comment on the draft permit decision for this special waste site or facility may file comments with the Cabinet and, if desired, request a public hearing within thirty (30) days of the publication of this notice pursuant to Section 6 of 401 KAR 45:050.

Please refer to Application No. _____ on all correspondence.

Publication pursuant to KRS 224.40-310.