

Kentucky Department for Environmental Protection
 Division of Waste Management
 Solid Waste Branch
 300 Sower Boulevard, Second Floor
 Frankfort, KY 40601
 (502) 564-6716

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Annual Landfarming Review

1. Agency Interest Number		[]		
2. Permit Number		[]		
3. Permittee Information				
Facility Name: []		Physical Address: []		
City: []	State: []	Zip Code: []	County: []	
Email Address: []		Phone Number: ([]) [] - []	Cell Phone Number: ([]) [] - []	
4. Generator Information				
Special Waste Source		[]		
KPDES Number <input type="checkbox"/> Not applicable		[]		
Quantity of non-biosolids special waste generated this year		[] <input type="checkbox"/> Gallons [] Dry tons		
5. Special Waste Analysis				
Dates of sampling	[]	[]	[]	[]
	[]	[]	[]	[]
	[]	[]	[]	[]
Type of sample		<input type="checkbox"/> Grab <input type="checkbox"/> Composite		
Waste analysis averages				
Parameter	Wet Weight		Dry Weight	
pH	[] SU			
Total Solids Content	[] %			
Volatile Solids Content	[] %			
Total Potassium	[] ppm		[] ppm	
Total Phosphorous	[] ppm		[] ppm	
Kjeldahl Nitrogen	[] ppm		[] ppm	
Ammonium Nitrogen (NH4-N)	[] ppm		[] ppm	
Nitrate Nitrogen (NO3-N)	[] mg/L		[] mg/kg	
Cadmium	[] mg/L		[] mg/kg	
Copper	[] mg/L		[] mg/kg	
Lead	[] mg/L		[] mg/kg	
Nickel	[] mg/L		[] mg/kg	
Zinc	[] mg/L		[] mg/kg	
Chromium	[] mg/L		[] mg/kg	
Polychlorinated Biphenyls (PCBs)	[]		[] mg/kg	
Attachment 1. Submit a copy of the actual laboratory analysis sheets for the averages reported.				
Attachment 2. Submit the soil analysis results for each subplot.				
6. Laboratory Information				
Name of Testing Laboratory: []		Address: []		
City: []	State: []	Zip Code: []		

8. Landfarming Application Log

Waste Generator: <input style="width: 80%;" type="text"/>	Subplot Number: <input style="width: 80%;" type="text"/>
Acreage: <input style="width: 80%;" type="text"/>	Monitoring Year: <input style="width: 80%;" type="text"/>
Permit Number: <input style="width: 80%;" type="text"/>	

Date of Application	Application Quantity (tons)	Applier's Initials	Date of Analysis
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9. Metals Concentration Conversion for Dry Special Waste					
Permit Number:				Sub-plot number:	
Parameter	Concentration in special waste in mg/kg	(multiply)	Tons of dry special waste applied	Conversion factor (multiply by 0.002)	Pounds of parameter applied
Cd		X		X 0.002 =	
Cu		X		X 0.002 =	
Pb		X		X 0.002 =	
Ni		X		X 0.002 =	
Zn		X		X 0.002 =	
Pounds of parameter applied ÷ subplot acreage = pounds of parameter applied per acre					
10. Metals Concentration Conversion for Liquid Special waste					
Duplicate this information and provide as Attachment 3 if there is more than one source of dry special waste					
Permit Number:				Sub-plot number:	
Parameter	Concentration in special waste in mg/L	(multiply)	Gallons of liquid special waste applied divided by 1,000,000	Conversion factor (multiply by 0.002)	Pounds of parameter applied
Cd		X		X 8.34 =	
Cu		X		X 8.34 =	
Pb		X		X 8.34 =	
Ni		X		X 8.34 =	
Zn		X		X 8.34 =	
Pounds of parameter applied ÷ subplot acreage = pounds of parameter applied per acre					

11. Residual Nitrogen Worksheet

	Organic Nitrogen Content of Special Waste					
	2.0	2.5	3.0	3.2	4.0	4.5
Number of years since last application of special waste	Pounds of N released per US ton of Special Waste applied					
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 special waste

One year ago:

Lbs. of Nitrogen released per ton of special waste x tons of special waste applied = Residual N (one year)

_____ x _____ = _____ Residual N (one year)

Two years ago:

Lbs. of Nitrogen released per ton of special waste x tons of special waste applied = Residual N (two years)

_____ x _____ = _____ Residual N (two years)

Three years ago:

Lbs. of Nitrogen released per ton of special waste x tons of special waste 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 you must find the organic nitrogen content of special waste from each year. Refer to your previous annual review.

12. Worksheet for Calculating Application Rates

Subplot Number: Crop:

Special Waste Composition (Parameter in ppm ÷ 10,000 = %)

Total Kjeldahl Nitrogen (TKN) ÷ 10,000 = %Ammonium Nitrogen (NH₄-N) ÷ 10,000 = %Nitrate Nitrogen (NO₃-N) ÷ 10,000 = %Total Phosphorus ÷ 10,000 = %Total Potassium ÷ 10,000 = %1. Percent Available Organic Nitrogen = (%TKN) – (%NH₄-N) – (%NO₃-N)

$$\text{_____} = (\text{_____}) - (\text{_____}) - (\text{_____})$$

2. Available Nitrogen in waste:

(a) Incorporation:

(%NH₄Nx20) + (%NO₃Nx20) + (%available organic N x 4) = lbs. available N/ton

$$(\text{_____} \times 20) + (\text{_____} \times 20) + (\text{_____} \times 4) = \text{_____} \text{ lbs. available N/ton}$$

(b) Surface Application:

(%NH₄Nx10) + (%NO₃Nx20) + (%available organic N x 4) = lbs. available N/ton

$$(\text{_____} \times 10) + (\text{_____} \times 20) + (\text{_____} \times 4) = \text{_____} \text{ lbs. available N/ton}$$

3. Residual Nitrogen (N):

(Calculated 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

$$\text{_____} - \text{_____} \div \text{_____} = \text{_____} \text{ Dry Tons/acre}$$

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

$$\text{_____} \div (\text{_____} \times 0.002) = \text{_____} \text{ Dry Tons/acre}$$

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

Annual Application Rate = Dry Tons/acre

5. Conversion Formula: Dry Tons to Wet Gallons

(Tons of special waste x 2000) ÷ (8.34x% solids in the special waste/100) = wet gallons/acre

$$(\text{_____} \times 2000) \div (8.34 \times \text{_____}) = \text{_____} \text{ wet gallons/acre}$$

6. Additional Phosphorous and Potassium needed:

(a) Phosphorus (P₂O₅) in waste:Tons waste/acre (from 4a or 4b) x % P in waste x 45.8 = lbs. P₂O₅ added/acre

$$\text{_____} \times \text{_____} \times 45.8 = \text{_____} \text{ lbs. P}_2\text{O}_5 \text{ added/acre}$$

(b) Additional P2O5 fertilizer needed:

Total phosphorous (P2O5) needed/acre – P2O5 added from special waste = lbs. P2O5/acre

_____ - _____ = _____ lbs. of additional P2O5 needed/acre

*A negative answer means no additional P2O5 fertilizer is needed.

(c) Potassium (K2O) in waste:

Tons waste (from 4a or 4b) /acre x % K in waste x 24 = lbs. K2O added/acre

_____ x _____ x 24 = lbs. K2O added/acre

(d) Additional K2O fertilized needed"

Total K2O needed/acre – K2O added from special waste = lbs. K2O/acre

_____ - _____ = _____ lbs. of additional K2O needed/acre

*A negative answer mean no additional K2O fertilizer is needed.

**Nitrogen Required – (lbs. available N/ton X maximum tons waste to be applied/acre) = lbs. of additional fertilizer nitrogen applied. (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 10(23). If special waste has previously been 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 10(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 special waste applied/acre/year

_____ + _____ = _____ years

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

13. Certification

Pursuant to 401 KAR 47:160 Section 6(4), a person with signature authority such as a sole proprietor, owner, partner, plant manager, LLC member, mayor, county judge executive or other authorized official must sign this certification statement. **NOTE: Consultants may not sign the following certification statement.**

“I certify under penalty of law that this documentation 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.”

Name of Applicant, e.g., Corporation or Unit of Government:

Name of Responsible Official:

Signature:

Title:

Date: / /

IMPORTANT NOTE: All information submitted on this form will be subject to public disclosure to the extent provided by Kentucky law. Persons filing this form may make claims of confidentiality in accordance with 400 KAR 1:060.

14. Nitrogen Balance Sheet

Subplot Number:

Permitee Name:

Permit Number:

Subplot Acreage:

Reporting Year:

(1) Date From-To	(2) Grand Total Special waste Applied (Dry Ton)	(3) Special waste Quantity Applied (Dry Ton / Acre)	(4) Special waste Nitrogen Applied (Lbs./acre From, 2a or 2b on Worksheet for Calculating Application Rates Column #3)	(5) Fertilizer Nitrogen Applied Lbs./acre	(6) Residual Nitrogen Remaining Lbs./acre (From Previous Residual Nitrogen Worksheet Years 1 and 2)	(7) Total Nitrogen Available Lbs./acre (the sum of columns 4, 5, & 6)	(8) Crop(s) Grown	(9) Yield Tons/acre or by/acre	(10) Date(s) Harvested or Grazed	(11) Nitrogen Removed Lbs./acre	(12) Nitrogen Remaining Lbs./acre (Column #7 minus Column #11)
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15. Metals Historical - Lifetime															
Subplot Number: <input type="text"/>									Permittee Name: <input type="text"/>						
Permit Number: <input type="text"/>									Subplot Acreage: <input type="text"/>						
(1) Year	(2) Special Waste Source	(3) Total Special waste Applied In Tons	(4) Amount per Acre In Tons	Total lbs. Applied (From Metals Conversion Sheet)					Rate in lbs./acre (Divide total lbs. by sub-plot acreage)					(15) Soil pH (from annual soil analysis)	(16) Lime Applied (tons/ acre/ year)
				(5) Cd	(6) Cu	(7) Pb	(8) Ni	(9) Zn	(10) Cd	(11) Cu	(12) Pb	(13) Ni	(14) Zn		
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16. Metals Historical - Annual

Subplot Number:

Permit Holder Name:

Permit Number:

Subplot Acreage:

Reporting Year:

(1) Date	(2) Special Waste Source	(3) Total tons Special waste Applied	(4) Tons of special wastes applied per Acre	Total lbs. Applied (From Metals Conversion Sheet)					Rate in lbs./acre (Divide total lbs. by sub-plot acreage)					(15) Soil pH (from annual soil analysis)	(16) Lime Applied (tons/ acre/ year)
				(5) Cd	(6) Cu	(7) Pb	(8) Ni	(9) Zn	(10) Cd	(11) Cu	(12) Pb	(13) Ni	(14) Zn		
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Grand Total	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

GENERAL INSTRUCTIONS
Annual Landfarming Review

Instructions provided are for the DEP 7048, Annual Landfarming Review form. This form is for annual reporting for landfarming of non-biosolids special waste. For annual reporting for biosolids landfarming, complete form DEP 4506 Annual Biosolids Landfarming Report. For any questions regarding any section of this form, please call the Division of Waste Management's Solid Waste Branch (SWB). This form must be completed either by typing or by printing legibly with black ink.

If a previous year's report is needed, request a copy by completing an open records request through the Department of Environmental Protection at (502) 564-3999 or EEC.KORA@ky.gov.

All sections of this form must be completed to be accepted by the cabinet. Be sure to include all information for every location permitted, even if this information was previously submitted on previous reports. For any future changes in permit information, an amended application form shall be submitted pursuant to 401 KAR 45:105.

Submit DEP 7048 form via mail to the following address:

Kentucky Department for Environmental Protection
Division of Waste Management
Solid Waste Branch
300 Sower Boulevard, Second Floor
Frankfort, KY 40601
Phone: (502) 564-6716

Submit DEP 7048 electronically using the eForms portal: <https://dep.gateway.ky.gov/eForms/Account/Home.aspx>

Section	1.	Agency Interest Number: Provide the Agency Interest number assigned to the landfarm facility.
Section	2.	Permit Number: Provide the solid waste permit number assigned to the facility. This number is formatted "sw000-0000".
Section	3.	Permittee Information: Provide the name of the landfarming facility, the physical address, and contact information for the landfarming facility.
Section	4.	Generator Information <ul style="list-style-type: none"> • Special waste source: Provide the name of the facility (or facilities) that is the source of special waste to be land applied. • KPDES Number: If the generating facility has a Kentucky Pollutant Discharge Elimination System Number, provide it. Otherwise, check the box for "not applicable". • Quantity of non-biosolids special waste generated this year: Provide the amount of non-biosolids special waste generated by the special waste source facility and indicate the units in either gallons or dry tons by checking the appropriate box.
Section	5.	Special Waste Analysis <ul style="list-style-type: none"> • Dates of sampling: Enter the dates on which samples of special waste were taken for analysis. • Type of sample: Indicate whether the samples were grab samples or composite samples. • Waste analysis averages: Enter the averages of the samples taken for the parameters listed. Provide results in wet and dry weight as indicated, with the exception that dry weight is not entered for pH, total solids content, and volatile solids content. • Attachment 1. Provide the laboratory result sheets for each of the waste analyses conducted in the reporting year. • Attachment 2. Provide the results of the soil analyses for each subplot in accordance with the soil monitoring plan in the approved permit application.
Section	6.	Laboratory Information: Provide the name, address, and phone number for the laboratory that analyzed the special waste samples.
Section	7.	Special Waste Application Summary: Complete the table summarizing the reporting year's land application of special waste for each permitted subplot <ul style="list-style-type: none"> • Subplot Number- Provide the identifying number for each subplot at the landfarm. • Grand Total Special Waste Applied- Provide the total amount of special waste applied for each subplot. Check tons or gallons to indicate the unit of the amount reported. • Total Amount Per Acre- Provide the total amount of special wastes applied per acre for each subplot. Check tons or gallons to indicate the unit of the amount reported. • Approved Rate Per Acre: Provide the amount in tons or gallons that is allowed to be applied per the approved permit application and permit. Check the box indicating the unit for the amount reported.
Section	8.	Landfarming Application Log: Begin a worksheet for each subplot by special waste generator source on the date the special waste is submitted for analysis at the beginning of the monitoring year. <ul style="list-style-type: none"> • Waste Generator: Provide the name of the generator of special wastes that was applied for the subplot. • Subplot Number: Provide the identification number for the subplot that received biosolids. • Subplot Acreage: Provide the acreage of the subplot • Monitoring Year: Provide the year for which this data is supplied. • Permit Number: Provide the permit number assigned to the landfarm permit.

		<ul style="list-style-type: none"> • Date of Application: For each day that special waste was applied to the subplot identified, provide the date. • Application Quantity in tons: Provide the amount of special waste applied to the subplot on the date identified in US tons. • Applier's Initials: Provide the initials of the person who applied the special waste. • Date of Analysis: Provide the date the analysis was done for the special waste that were land applied on that date. • If the landfarm has more than one subplot, provide separate log for each subplot as Attachment 8A.
Section	9.	<p>Metals Concentration Conversion for Dry Special Waste: Complete the provided calculations for each subplot that received dry special waste. If more than one source, duplicate the information and provide as Attachment 9A.</p> <ul style="list-style-type: none"> • Permit Number: Provide the assigned permit number for the landfarm. • Subplot Number: Provide the identifying number for the subplot. • Concentration in special waste in mg/kg: For each listed parameter (cadmium, copper, lead, nickel, and zinc) provide the average concentration in milligrams per kilogram (mg/kg). • Tons of dry special waste applied: Enter the tonnage of dry special waste applied to the subplot. • Pounds of parameter applied: Multiply the concentration in mg/kg by the tonnage of special waste applied and then multiply the result by the conversion factor of 0.002 to get the result in pounds of parameter applied.
Section	10.	<p>Metals Concentration Conversion for Wet Special Waste: Complete the provided calculations for each subplot that received wet special waste. If more than one source, duplicate the information and provide as Attachment 10A.</p> <ul style="list-style-type: none"> • Permit Number: Provide the assigned permit number for the landfarm. • Subplot Number: Provide the identifying number for the subplot. • Concentration in special waste in mg/L: For each listed parameter (cadmium, copper, lead, nickel, and zinc) provide the average concentration in milligrams per liter (mg/L). • Gallons of liquid special waste applied divided by 1,000,000: Take the gallons of special waste applied to the subplot and divide that amount by 1,000,000. Enter the result in this column for each parameter. • Pounds of parameter applied: Multiply the concentration in mg/L by the gallons of special waste applied (enter in the second column) and then multiply the result by the conversion factor of 8.34 to get the result in pounds of parameter applied.
Section	11.	<p>Residual Nitrogen Worksheet: Complete the residual nitrogen worksheet using the formulas provided to calculate residual nitrogen for each subplot. Duplicate the pages if there is more than one subplot. Complete this form even if it is the first year's application. Use the residual nitrogen calculated on Section 12. Worksheet for Calculating Application Rates, but not on the Section 14. Nitrogen Balance Sheet, if it is the first year. If it not the first application year, refer to previous years' reports for residual nitrogen amounts.</p>
Section	12.	<p>Worksheet for Calculating Application Rates: Complete the application rate worksheet for each subplot and crop to determine the nutrients applied.</p>
Section	13.	<p>Certification Statement: Only a person with signature authority for the applicant may complete the certification statement. The certification statement must be notarized. A new certification statement shall accompany each submittal in the case of a notice of deficiency.</p>
Section	14.	<p>Nitrogen Balance Sheet: Complete the worksheet for each subplot in order to document nitrogen applied and removed.</p> <ul style="list-style-type: none"> • Subplot Number: Provide the number of the subplot. • Permittee Name: Provide the name of the landfarm permittee. • Permit Number: Provide the assigned permit number. • Subplot Acreage: Provide the size of the subplot in hectares. • Reporting Year: Provide the year for which data are provided. • Columns 1-12: Provide the requested information for each interval at which special waste or nitrogen fertilizer was applied to the subplot.
Section	15.	<p>Metals Historical – Lifetime: Provide the cumulative amount of waste applied to the subplot for the previous years of operation.</p> <ul style="list-style-type: none"> • Subplot Number: Provide the number of the subplot. • Permittee Name: Provide the name of the landfarm permittee. • Permit Number: Provide the assigned permit number. • Subplot Acreage: Provide the size of the subplot in hectares. • Columns 1-16: Provide the requested information for each year permitted. For years in which no special waste was applied, report zero for the appropriate columns. • Grand Total: Provide the sum for each column in the row provided.
Section	16.	<p>Metals Historical – Annual: Provide the amount of waste applied to the subplot in the operating year for this report.</p> <ul style="list-style-type: none"> • Subplot Number: Provide the number of the subplot. • Permittee Name: Provide the name of the landfarm permittee. • Permit Number: Provide the assigned permit number. • Subplot Acreage: Provide the size of the subplot in hectares. • Reporting Year: Provide the year for which data are provided. • Columns 1-16: Provide the requested information for each interval at which special waste or nitrogen fertilizer was applied to the subplot.

