



Application for a Solid Waste Beneficial Use Determination

DEQ USE ONLY - BUSINESS OFFICE
 Date Received: 7/20/15
 Amount Received: 2000.00
 Check No.: 000051678
 Deposit No.: 32006
 Forward confirmation of fee payment for:
 Eastern Region to DEQ, The Dalles
 Northwestern Region to DEQ-NWR, Portland
 Western Region to DEQ, Eugene

A. REFERENCE INFORMATION (Please type or print clearly.)

<u>Tom Hunton</u> Legal name of applicant		<u>SureCrop Farm Services</u> Business name of applicant if different	
<u>20410 Milliron Rd</u> Mailing address		<u>Junction City</u> City	<u>OR</u> State
<u>(541) 998-1121</u> Phone	<u>(541) 601-1594</u> Mobile	<u>tomh@surecrop.com</u> E-mail	<u>97448</u> Zip
			<u> </u> Fax

<u>Seneca Sustainable Energy</u> Generator of solid waste (may be same as applicant)			
<u>PO Box 851</u> Mailing address		<u>Eugene</u> City	<u>OR</u> State
<u>(541) 461-6257</u> Phone	<u>(541) 912-9945</u> Mobile	<u>tpayne@senecasawmill.com</u> E-mail	<u>97440</u> Zip
			<u> </u> Fax

B. TYPE OF BENEFICIAL USE DETERMINATION REQUESTED

Beneficial Use Determination applications are categorized based on the type of information and potential amount of work required by DEQ staff to review application materials and render a decision. A tiered review and fee system has been established in rule. The tiers are:

- Tier 1 For a beneficial use of a solid waste that does not contain hazardous substances significantly exceeding the concentration in a comparable raw material or commercial product and that will be used in a manufactured product;
- Tier 2 For a beneficial use of a solid waste that contains hazardous substances significantly exceeding the concentration in a comparable raw material or commercial product, or involves application on the land;
- Tier 3 For a beneficial use of a solid waste that requires research, such as a literature review or risk assessment, or for a demonstration project to demonstrate compliance with this rule.

I am applying for a Tier 1 Tier 2 Tier 3 determination.

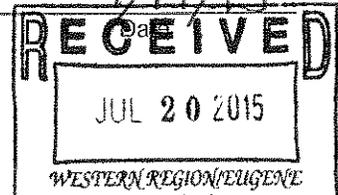
C. DOES THIS PROPOSED BENEFICIAL USE INVOLVE LAND APPLICATION OF ANY MATERIAL?

Yes No

D. SIGNATURE

I hereby certify by my signature below that the information contained in this application, and the documents I have attached, are true and correct to the best of my knowledge and belief.

[Signature] Todd A. Payne VP & GM 7/14/15
 Signature of legally authorized representative Print name Title Date



E. REQUIRED ATTACHMENTS TO THIS APPLICATION *(For an application to be complete, it must provide the required information for each listed item of the tier which is being applied for.)*

Tier 1

- A description of the material, manner of generation, and estimated quantity to be used each year;
- A description of the proposed use;
- A comparison of the chemical and physical characteristics of the material proposed for use with the material it will replace;
- A demonstration of compliance with the performance criteria in OAR 340-093-0280 based on knowledge of the process that generated the material, properties of the finished product, or testing; and
- Any other information that DEQ may require to evaluate the proposal.

Tier 2

- The information required for a Tier 1 application;
- Sampling and analysis that provides chemical, physical, and biological characterization of the material and that identifies potential contaminants in the material or the end product, as applicable;
- A risk screening comparing the concentration of hazardous substances in the material to existing, DEQ approved, risk-based screening level values, and demonstrating compliance with acceptable risk levels;
- Location or type of land use where the material will be applied, consistent with the risk scenarios used to evaluate risk;
- Contact information of property owner(s) if this is a site-specific land application proposal, including name, address, phone number, e-mail, site address and site coordinates (latitude and longitude); and
- A description of how the material will be managed to minimize potential adverse impacts to public health, safety, welfare, or the environment.

Tier 3

- The information required for a Tier 1 & 2 application;
- A discussion of the justification for the proposal;
- An estimate of the expected length of time that would be required to complete the project, if it is a demonstration; and
- If it is a demonstration project, the methods proposed to ensure safe and proper management of the material.

F. PERFORMANCE CRITERIA *(For all tiers - An application for a beneficial use determination must demonstrate satisfactory compliance with the following performance criteria.)*

The use is productive, including:

- ◆ There is an identified or reasonably likely use for the material that is not speculative;
- ◆ The use is a valuable part of a manufacturing process, an effective substitute for a valuable raw material or commercial product, or otherwise authorized by DEQ, and does not constitute disposal; and
- ◆ The use is in accordance with applicable engineering standards, commercial standards, and agricultural or horticultural practices.

The use will not create an adverse impact to public health, safety, welfare, or the environment, including:

- ◆ The material is not a hazardous waste under ORS 466.005;
- ◆ Until the time the material is used in accordance with a beneficial use determination, the material will be managed, including any storage, transportation, or processing, to prevent releases to the environment or nuisance conditions;
- ◆ Hazardous substances in the material do not significantly exceed the concentration in a comparable raw material or commercial product, or do not exceed naturally occurring background concentrations, or do not exceed acceptable risk levels, including evaluation of persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination.

The use will not result in the increase of a hazardous substance in a sensitive environment.

The use will not create objectionable odors, dust, unsightliness, fire, or other nuisance conditions.

The use will comply with all applicable federal, state, and local regulations.

G. FEES (Must accompany the application for it to be considered complete)

<input type="checkbox"/>	Tier 1 beneficial use determination	\$1,000
<input checked="" type="checkbox"/>	Tier 2 beneficial use determination	\$2,000
<input type="checkbox"/>	Tier 3 beneficial use determination	\$5,000

Make checks out to: **Oregon DEQ**

Total fees included: * 2,000

H. APPLICATION PROCEDURE

Step 1

Contact a DEQ staff person for assistance with the preparation of the application. DEQ staff will help with: 1) Determination of the eligibility for a beneficial use determination of a particular waste or process; and, 2) If eligible, establish the tier of beneficial use determination review required and associated fee to submit with the application.

Step 2

Mail the original signed application, all attachments, including the fee payment plus one extra copy to the appropriate regional office (see listing below.) Note that DEQ review work will not begin until a complete application packet is received. Incomplete applications may be returned. DEQ recommends the applicant keep a full copy of all application materials to guard against possible loss in transit.

Step 3

DEQ will contact the applicant, acknowledging receipt of the application, and will identify the staff person assigned to carryout the review. This staff person will contact the applicant if any additional information is needed.

Region	Counties Served	Address & Phone
Eastern Region	Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco, and Wheeler	Eastern Region Department of Environmental Quality 400 E Scenic Drive, Ste 2.307 The Dalles, OR 97058 (541) 298-7255 ext. 221
Northwest Region	Clatsop, Clackamas, Columbia, Multnomah, Tillamook, and Washington	Northwest Region DEQ Solid Waste Programs 2020 SW Fourth Ave. Ste 400 Portland, OR 97201 (503) 229-5353
Western Region	Benton, Coos, Curry, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Polk, and Yamhill	Western Region DEQ Solid Waste Programs 165 E 7 th Ave., Ste 100 Eugene, OR 97401 (541) 687-7465

Tier 1 Information

Section I.

A description of the material, manner of generation, and estimated quantity to be used each year

Material description

Wood ash is the powdery residue remaining after the combustion of woody materials, both forest management residues and lumber mill waste. When wood is burned, the carbonates and oxides that remain in the ash are valuable soil amendments that can raise soil pH and help neutralize acid soils. Calcium is the most abundant element in wood ash, and it is also a good source of potassium, phosphorus, and magnesium. In relation to commercial fertilizer, typical wood ash would be approximately 0-1-3 (N-P-K). Wood ash also contains many of the nutrients originally taken up from the soil during the life cycle of the tree, and these micronutrients may contribute to improved crop performance.

Both greenhouse and field trials have verified the safety and benefits of recycling wood ash on agricultural land; heavy metal concentrations are generally low, even at high application rates. If application and storage are properly managed, the risk of heavy metal contamination to groundwater or other environmental resources is low.

The proposed material is a blend of fly ash and bottom ash from the Seneca Sustainable Energy (SSE) company. The ash is extremely fine, with a fineness factor of .79.

Manner of generation

Wood ash is a byproduct of biomass cogeneration at the Seneca Biomass Power Facility, a renewable energy plant adjacent to sawmill operations. The bulk of the feedstock comes from onsite wood by-products such as sawdust, bark, and shavings from the mill, with some contribution from offsite slash. None of the wood burned is treated, and the sawmill by-products do not contain any added chemicals.

Estimated quantity to be used each year

5,500 tons annually

Section II.

A description of the proposed use

Proposed use

Wood ash is used to increase soil pH, or “sweeten” acid soils. Low pH soils have been recognized by Oregon State University as “the most commonly overlooked and poorly understood yield-limiting factor in western Oregon.” Western Oregon has naturally acid soils, and crop production often amplifies acidity due to repetitive N fertilizer application. Wood ash is a good alternative to calcitic limestone—the most commonly used liming agent—with the added benefits of faster action in soil and the ability replace macro and micronutrients removed during plant growth and harvest. Wood ash has also been shown in preliminary research to increase phosphorus availability and improve crop yields when compared to applications of agricultural lime plus phosphate fertilizer.

Wood ash distributed by SureCrop Farm Services will be stored by SSE at the ^{Seneca-Milliken Road} Swanson Superior site, where it is kept contained and wetted to avoid dust issues. The material will be

transported in covered trailers or trucks to application sites, where it will be applied at rates up to 14,000 lbs/acre. The material will be sold in bulk to growers.

Section III.

A comparison of the chemical and physical characteristics of the material proposed for use with the material it will replace

Table 1. Comparison of wood ash samples with commercial waste-derived liming agents and calcitic limestone, heavy metals.

	Enhanced Calcitic Limestone Coarse SGN 120	DR Johnson Co-gen II Ash	Roseburg Forest Products Premium Bio Ash	R&R Lumber Ash Mix	Proposed Material Wood Ash (Fly)	Proposed Material Wood Ash (Bottom)
Arsenic	.26	32.3	4.02	4.90	9.56	<1.00
Cadmium	2.38	2.45	1.98	3.63	.844	<.100
Mercury	.006	<.100	.05	<.010	.119	<.0133
Lead	20.65	65.3	5.1	10.23	7.56	.323
Nickel	8.43	115	16.9	263.32	13.2	4.32
CaCO3	95%	17%	35%	5.7%	11.8%	-
CCE	95%	28%	50%	18%	9.2%	-

Table 2. Physical characteristics of commercial waste-derived liming agents and calcitic limestone

	Enhanced Calcitic Limestone Coarse SGN 120	DR Johnson Co-gen II Ash	Roseburg Forest Products Premium Bio Ash	R&R Lumber Ash Mix
Moisture	<15%	<28%	<28%	<60%
Passing 100 mesh	95%	40%	70%	43%
Passing 40 mesh	100%	53%	81%	55%
Passing 20 mesh	100%	65%	84%	73%
Passing 10 mesh	100%	84%	92%	99%

Table 3. Physical characteristics of wood ash samples

	Proposed Material Wood Ash
Moisture	10.7%
Sample on 8-mesh	13.7%
Sample through 8-mesh and on 60-mesh	15.3%
Sample through 60 mesh	71%
Fineness factor	.79

Section IV.

A demonstration of compliance with the performance criteria in OAR 340-093-0280 based on knowledge of the process that generated the material, properties of the finished product, or testing

1. *The applicant has characterized the solid waste and use sufficiently to demonstrate compliance*

See sections I. and II.

2. *The use is productive, including:*

- a. *There is an identified or reasonably likely use for the material that is not speculative*

Wood ash has been used locally and nationally as a natural liming agent and micronutrient fertilizer; existing equipment can be used for storage and application. Other wood ash products are registered with the Oregon Department of Agriculture as fertilizers, liming agents, and agricultural minerals.

- b. *The use is a valuable part of a manufacturing process, an effective substitute for a valuable raw material or commercial product, or otherwise authorized by the Department and does not constitute disposal.*

Wood ash is a valuable and effective locally produced liming agent with benefits beyond those provided by other liming products. Agricultural use recycles wood ash in a beneficial manner, and does not constitute disposal.

- c. *The use is in accordance with applicable engineering standards, commercial standards, and agricultural or horticultural practices*

Liming is already a common agricultural practice, and existing application, transportation and storage equipment can be used for wood ash equally as for other agricultural amendments.

3. *The use will not create an adverse impact to public health, safety, welfare, or the environment, including:*

- a. *The material is not a hazardous waste under ORS 466.005;*

The material is not classified as a hazardous waste

b. Until the time a material is used according to a beneficial use determination, the material must be managed, including any storage, transportation, or processing, to prevent releases to the environment or nuisance conditions;

Wood ash from SSE is currently, and will continue to be managed responsibly. The material is always covered when transported to avoid dust dispersal and storage is secure, away from waterways and flood zones, and appropriately managed for dust control.

c. Hazardous substances in the material meet one of the criteria in this subsection,

i. (A) Do not significantly exceed the concentration in a comparable raw material or commercial product,

ii. (B) Do not exceed naturally occurring background concentrations; or

iii. (C) Will not exceed acceptable risk levels, including evaluation of persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination;

Hazardous metal concentrations in the material, even pure fly ash, do not significantly exceed concentrations in comparable commercial products.

Concentrations do not exceed background concentrations detected in the South Willamette Valley. Research has not associated any significant risk of heavy metal bioaccumulation with wood ash application.

d. The use will not result in the increase of a hazardous substance in a sensitive environment;

The material is acceptable within all screening criteria. Application will not occur in environmentally sensitive areas.

e. The use will not create objectionable odors, dust, unsightliness, fire, or other nuisance conditions; and

Care will be taken during application and transport to minimize dust and nuisance conditions, as is currently practiced for comparable commercial liming products.

f. The use must comply with applicable federal, state, and local regulations.

Beneficial use will comply with all applicable regulations.

Tier 2 Information

Section V.

The information required for a Tier 1 application

Section VI.

Sampling and analysis that provides chemical, physical, and biological characterization of the material and that identifies potential contaminants in the material or the end product

Sample analysis for fly and bottom ash are attached, including heavy metals testing.

Section VII.

A risk screening comparing the concentrations of hazardous substances in the material to existing, DEQ approved, risk-based screening level values, and demonstrating compliance with acceptable risk levels

The material meets the conditions of ORS 603-059-0100 Limits of Non Nutritive Constituents, with heavy metal concentrations within maximum allowed limits. Analytical results of ash samples indicate heavy metal concentrations are comparable to or below levels in commercially available wood ash products; risks association with accidental ingestion, inhalation or dermal contact can be mitigated by good management practices during storage and application.

Section VIII.

Location or type of land where the material will be applied, consistent with the risk scenarios used to evaluate risk

The material will be applied to agricultural land in Lane, Linn, Benton, and Douglas counties.

Section IX.

Contact information of property owner(s) if this is a site-specific land application proposal...

N/A

Section X: A description of how the material will be managed to minimize potential adverse impacts to public health, safety, welfare, or the environment

Storage of the material will contain and wet wood ash appropriately to avoid adverse impacts of dust, and transport will always occur in covered trucks and trailers. Site assessment before application will minimize potential impacts to environmental resources and waterways, and all workers involved in application and transport will operate under company best management practices to minimize health and exposure risks.