

Application for a
**Solid Waste
Beneficial Use
Determination**

DEQ USE ONLY - BUSINESS OFFICE
Date Received: _____
Amount Received: _____
Check No.: _____
Deposit No.: _____
Forward confirmation of fee payment for: Eastern Region to DEQ, The Dalles Northwestern Region to DEQ-NWR, Portland Western Region to DEQ, Salem

SW BUD
Linn Co
proj 6137

OR Green Pros
Freres Lumber

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

Ryan Kackley, Kyle Freres Legal name of applicant		Oregon Green Pros LLC and Freres Lumber Co., Inc. Business name of applicant if different	
602 B Front St Mailing address		Silverton City	Oregon State
			97381 Zip
503-999-7685 Phone	503-999-7685 Mobile	oregongreenpros@gmail.com E-mail	Fax

Freres Lumber (co-applicant) Generator of solid waste (may be same as applicant)			
141 14th Street Mailing address		Lyons City	Oregon State
			97358 Zip
503-859-2121 Phone	503-991-6610 Mobile	kfreres@frereslumber.com E-mail	503-859-2112 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.

	Ryan Kackley, Kyle Freres	Oregon Green Pros Owner, VP Freres Lumber Co., Inc.	10/15/12
Signature of legally authorized representative	Print name	Title	Date

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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)

	Tier 1 beneficial use determination	\$1,000
	Tier 2 beneficial use determination	\$2,000
	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 750 Front St. NE Suite 120 Salem, OR 97301 (503) 378-5047

Tier 1 information:

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

Description of material:

Wood ash is the inorganic and organic residue remaining after the combustion of wood or unbleached wood fiber. The physical and chemical properties of wood ash vary significantly depending on many factors. Hardwoods usually produce more ash than softwoods and the bark and leaves generally produce more ash than the inner woody parts of the tree. On the average, the burning of wood results in about 6-10% ashes.

Ash is composed of many major and minor elements needed by the tree for plant growth. Since most of these elements are extracted from the soil and atmosphere during the tree's growth cycle, they are elements that are common in our environment and are also essential elements in the production of crops and forages. Calcium is the most abundant element in wood ash and gives the ash properties that are similar to agricultural lime. Ash is also a good source of potassium, phosphorus, magnesium, and aluminum. In terms of commercial fertilizer, average wood ash would probably be about 0-1-3 (N-P-K). In addition to these macronutrients, wood ash is also a good source of many micronutrients that are needed in trace amounts for adequate plant growth. Wood ash contains few elements that pose environmental problems. Heavy metal concentrations are typically low and not in a highly extractable or available form.

Manner of generation:

Biomass Wood Ash is a popular term with many definitions. Biomass is considered to be a woody material that is burned as fuel to generate electricity or produce heat. Biomass Wood Ash is the residual product left over.

Estimated Quantity to be used each year:

Estimate of 2,500 Tons of Biomass Wood Ash to be used each year.

Description of the proposed use;

Wood Ash Material is to be placed in sealed waterproof plastic bags, similar to steer manure or potting soil. Bags will then be marketed for use in gardens as a soil additive. This includes as a natural micronutrient fertilizer and pH adjuster. Full instructions and safety information will be printed on every bag and on website. See below for examples and research for this use.

"WOOD ASHES - How to Use Them in the Garden"

<http://www.humeseeds.com/ashes.htm>

"Wood ashes contain potassium, some phosphorus and magnesium. Nutritional value varies according to the species of wood, according to Dr. Gary F. Griffin, an agronomist with the University of Connecticut Extension Service (6/6/81). Wood ash especially would be beneficial in areas where you have deciduous trees and shrubs, including fruit trees, vegetables (root crops), bulbs, annuals, perennials and deciduous vines. Wood ashes can be used very successfully in the vegetable garden (except in the area where you plan to grow potatoes). Mix the ash thoroughly with your soil. Tomatoes seem to benefit especially from soil that has been

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mixed with a small quantity of wood ash. Since the nutrient content of wood ashes is rather low, there is little danger of chemically burning garden plants as long as moderate amounts of wood ashes are used. (Of course, the ashes must be allowed to cool before being used in the garden.)

“Wood ash can be useful in yard if used with caution”

<http://extension.oregonstate.edu/gardening/wood-ash-can-be-useful-yard-if-used-caution>

Source: [Dan Sullivan](#)

“What can you do with all the ash from burning wood in your fireplace or wood stove? Wood ash can be useful in home gardens, in your compost pile or as a pest repellent, explained Dan Sullivan, soil scientist with the Oregon State University Extension Service.

Wood ash has long been recognized as a valuable substance, Sullivan said.

For the home gardener, however, wood ash can be a valuable source of lime, potassium and trace elements.

‘Since wood ash is derived from plant material, it contains most of the 13 essential nutrients the soil must supply for plant growth,’ said Sullivan. ‘When wood burns nitrogen and sulfur are lost as gases, and calcium, potassium, magnesium and trace element compounds remain. The carbonates and oxides remaining after wood burning are valuable liming agents, raising pH, thereby helping to neutralize acid soils. Where soils are acid and low in potassium, wood ash is beneficial to most garden plants. Use wood ash on flower beds, lawns and shrubs.’

Lawns needing some lime and potassium can also benefit from wood ash.

In compost piles, wood ash can be used to help maintain a neutral condition, the best environment to help microorganisms break down organic materials. Ash also adds nutrients to compost.

Wood ash can be used to repel insects, slugs and snails, because it draws water from invertebrates’ bodies. Sprinkle ash around the base of your plants to discourage surface feeding pests.”

USES

Agriculture

- Soil amendment for bulk agricultural applications
- Soil amendment for bagged horticultural applications
- Conditions soil increasing soil fertility & crop yields.
- Liming Agent

Field and greenhouse research have confirmed the safety and practicality of recycling wood ash on agricultural lands. It has shown that wood ash has a liming effect of between 8 and 90% of the total neutralizing power of lime and can increase plant growth up to 45% over traditional limestone.

Most of Oregon’s soils are naturally acidic; therefore continuous agriculture requires many soil additions to correct for these deficiencies. The fact that additions such as nitrogen often lower the soil pH makes the addition of neutralizing agents such as lime or wood ash a necessity on most Oregon soils. Liming improves crop growth by decreasing the availability of certain metals below toxic levels, providing Ca and Mg to crops, and improving P availability.

While dolomitic and some calcitic limes are the most common additions used in Georgia, wood ash has many of the same effects as commercial lime. It also has the added benefit of being able to replace many of the macro and micronutrients removed during plant growth and

harvesting. Several studies have compared plant growth using both traditional limestone and wood ash and most have concluded that ash gives better growth responses than limestone. While some studies have reported detrimental effects at extremely high application rates, these responses were explained by the drastic increases in soil pH beyond the plant's optimal level. As long as the soil pH is maintained at the proper level, using wood ash as a liming agent and soil amendment will enhance productivity.

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

Material Proposed

Product Name: Wood Ash

Product Name:	LawnSoil with Scott's	pH Increaser	Spectrum Soil Amendment	Pepzyme Clear Soil	Biomass Ash (Proposed Material)	Screening Levels	Risk-Based Concentrations	Regional Screening Levels
Arsenic:	21.3	0.31	20	20	23.8	10	0.39	0.39
Cadmium:	0.631	<1	0.68	<0.5	<0.1	4	39	70
Mercury:	0.0689	<0.02	0.08	0.07	0.13	0.3	23	5.6
Lead:	15.3	<5	<5	<5	15.7	50	400	400
Nickel:	23.5	42	21.2	<1	12.4	30	1500	1500
Total Nitrogen:	0.1%							
Avail. Phosphate:	0.03%				0.50%			
Sol. Potash:	0.05%							
Calcium:		20%						
Magnesium:		12%						
Sulfur:								
CCE:		97%			9%			
Lime Score:		95			2.6			

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.....

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;
 - A: Wood Ash will be used as a micronutrient fertilizer and natural liming agent.
- ◆ 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

A: Wood Ash is a substitute for chemical micronutrient fertilizers and industrial liming agents. Wood Ash would be placed into bags and sold. Does not constitute disposal.

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

A: The proposed use is in accordance with agricultural and horticultural practices. See above citation of OSU Extension Services

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;

A: The material is NOT a hazardous waste under statute.

◆ 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;

A: The material is currently and always will be managed properly. The material will be put directly into a dump truck with a cover to prevent the wind from blowing the material onto any road. The material will be taken directly to a bagging plant and put into water proof plastic bags and sealed. The bags will be stacked on pallets, stored in warehouse to be delivered to customers.

◆ 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.

A: Material is acceptable within all screening levels.

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

A: Material is acceptable within all Screening levels.

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

A: Use of material will actually decrease any odors in the environment it is placed in. Weight and texture of Material produces little to no dust is present in material.

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

A: Beneficial Use will comply with all regulations.

•Case-Specific Beneficial Use – Requires DEQ approval prior to use.

–Tier One – 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 Two – Contains hazardous substances significantly exceeding the concentration in a comparable raw material or commercial product, or involves application on the land.

Any other information that DEQ may require to evaluate the proposal.

Tier 2 Information:

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;

Wood ash is within all acceptable levels on the DEQ master table run.

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

It will be used for gardens.

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

N/A

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

The material will be put directly into a dump truck with a cover to prevent the wind from blowing the material onto road. The material will be taken directly to a bagging plant and put into waterproof plastic bags and sealed. The bags will be stacked on pallets, stored in warehouse to be delivered to customers.

Industry Example:

Source: <http://www.woodash.net/index.html>

Wood Ash Industries owns and operates a wood ash disposal and transfer site located in Gauthier Township, approximately 10 miles east of Kirkland Lake near the Ontario-Quebec border. The 25 year certificate of approval was granted in December of 2002 by the Ontario Ministry of Environment, it is the first privately owned wood ash disposal site of its kind in the province of Ontario.

The site receives wood ash from one source only, Kirkland Lake Power, a wood fired cogeneration power plant located in Kirkland Lake, Ontario. All wood ash disposed at the site is fully recyclable for reuse under the existing certificate of approval. The wood ash is essentially a type of Biochar suitable for Agricultural & Horticultural use.

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

148681

Issuing Office Salem Date 17th Oct 2012

Received From Freer's Lumber Co., Inc.

Address 141 14th St / P.O. Box 276, Lyons OR Zip 97358

Description of Permit Requested

1. SW-BUD Application
2. _____
3. _____

Fees Received

On-Site Sewage Permit \$ _____
On-Site Sewage Surcharge \$ _____
Other SW-BUD \$ 2,000.00
Total \$ 2,000.00

Received: Cash Amt. \$ _____
Check \$ 2,000.00

chk# 26598

Issued By Francis Holm