


Beneficial Use of Solid Waste Determination Evaluation Form

 <p style="font-size: small;">State of Oregon Department of Environmental Quality</p>	Applicant:	Lane Forest Products		
	BUD#:	20140207		
	Solid Waste:	Composted street sweepings		
	Summary of Proposed Beneficial Use:	Products will include soil and compost mixes for use on non-food-crop agricultural lands and applied at or below agronomic rates. Other potential uses include highway berms and shoulder material, seeding medium for landfills, highways, and other commercial applications.		
	Reviewer:	Bill Mason, DEQ-Eugene	Date:	April 29, 2014
	Tier:	<input type="checkbox"/> One <input checked="" type="checkbox"/> Two <input type="checkbox"/> Three		

Beneficial Use of Solid Waste

Beneficial use of solid waste is a sustainability practice that may involve using an industrial waste in a manufacturing process to make another product or using a waste as a substitute for construction materials.

The environmental benefits of substituting industrial-waste materials for virgin materials includes conserving energy, reducing the need to extract natural resources, and reducing demand for disposal facilities.

Oregon Administrative Rules 340-093-0280 to -0290 establish standing beneficial uses and a process for DEQ review of case-specific beneficial-use proposals. Under these rules, DEQ may issue a beneficial-use determination as an alternative to a disposal permit for proposals that meet the rule criteria. If DEQ approves of a beneficial use and issues a beneficial-use-determination letter, DEQ no longer regulates the material as a solid waste as long as the applicant or their customers use the waste in accordance with the approved beneficial-use determination.

Beneficial Use Determination Evaluation Summary

- Yes, the beneficial use of this solid waste meets all the case-specific performance criteria listed in this checklist and DEQ approves its use.
- No, the beneficial use of this solid waste does not meet all the case-specific performance criteria listed below and DEQ does not approve its use.

Sources of the waste to be used beneficially: The City of Eugene routinely generates street sweepings during municipal-road maintenance as required under their DEQ-issued stormwater permit. Eugene

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sweeper trucks unload the material into 30-yard drop boxes placed around the city. When drop boxes are full, the city has typically hauled the material for disposal in a DEQ-permitted landfill.

Street-sweeping material consists of soil components (clays, silts, and sands), rocks, and organic components (leaves, sod, and woody material), and trash. Most private and public entities run sweeper trucks on scheduled routes that vary from daily to monthly. Estimated actual processing and usage is 6000 tons annually.

Proposed uses: The applicant, Lane Forest Products, plans to screen the material to remove trash and then separate the material by particle size. They will take any trash they screen out to the landfill, and the organics will be composted. They will either compost or stockpile heavier sands, silts, and clays so they can mix them into the various products they sell.

They are seeking a beneficial-use determination for the street-sweeping waste so they can turn the material into products like soil and compost mixes for use in agriculture applied at or below agronomic rates. Other potential beneficial uses include highway berms and shoulder material, seeding medium for landfills, and highways and other commercial applications.

Lane Forest Products has a DEQ-issued composting permit, and so the organics composting will occur under those permitting conditions at one or more of their permitted facilities.

Case-Specific Beneficial Use Performance Criteria

DEQ may approve an application for a case-specific beneficial use of solid waste only if the applicant address all of the following performance criteria: 1) characterizing the solid waste; 2) proposing how they plan to productively and beneficially use the solid waste; and 3) describing the effect of their proposed beneficial use on public health, safety, welfare, and/or the environment.

1) Characterization of the Solid Waste

- a. Did the applicant characterize the solid waste and proposed beneficial use sufficiently to demonstrate compliance with the rules for case-specific beneficial use determinations (OAR 340-093-0280) by submitting required information for the appropriate tier? Yes No

Notes:

Lane Forest Products will make custom soil and compost mixes for each particular end use, but their products will match in physical characteristics to non-sweeper base products. Mixes will generally include sands, silts, and loams combined with compost, fertilizers, bark dust, amendments, and seed. The chemical composition will also be similar, but some sweeper boxes can have contamination. Contamination can include heavy metals, petroleum, and polycyclic aromatic hydrocarbons. Most sweeper material contains contamination levels that are below occupational screening levels as determined by DEQ's risk-based soil-screening-level matrix. For this reason, soil and compost mixes

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will be developed and marketed for non-residential uses.

- b. Did the applicant provide an adequate description of the material proposed for beneficial use, the manner of generation, and the estimated quantity to be used beneficially each year? Yes No

Notes:

The material is generated during municipal road maintenance by the routine sweeping of streets. For the City of Eugene, sweeper trucks unload the material into 30-yard drop boxes placed around the city. When full, the drop boxes have been hauled to a DEQ permitted landfill. Street sweeping material consists of soil components (clays, silts, and sands), rocks, and organic components (leaves, sod, and woody material), and trash. Most private and public entities run sweepers trucks on scheduled routes that vary from daily to monthly. Estimated actual processing and usage is 6000 tons.

- c. Did the applicant provide an adequate description of the proposed beneficial use and justify how the proposed use is beneficial? Yes No

Notes:

The material will be screened to remove trash and to separate the material by size. Trash will be disposed of and the organics will be composted. Heavier sands, silts, and clays may be composted or stockpiled for mixing into products. Organics will be composted under Lane Forest Products' composting permit. A Beneficial Use Determination is being sought for the composted organic material. Products will include soil and compost mixes for use in agriculture and applied at or below agronomic rates. Other potential uses include highway berms and shoulder material, seeding medium for landfills and highways and other commercial applications.

- d. Did the applicant provide a sufficient comparison of the chemical and physical characteristics of the material proposed for beneficial use with the material it will replace? Yes No

Notes:

The soil and compost mixes will be custom made for the particular end use but will match in physical characteristics to non-sweeper base products. Mixes will generally include sands, silts and loams combined with compost, fertilizers, bark dust, amendments and seed. The chemical composition will also be similar to non-sweeper base products, but some sweeper boxes can have contamination. Contamination can include heavy . metals, petroleum and hydrocarbons such as PAHs and CPAHs. Most sweeper material tests at contamination levels that are below industrial cleanup levels as determined by DEQ's risk-based soil matrix. For this reason, soil and compost mixes will be developed and marketed for non-residential uses.

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- e. Did the applicant successfully demonstrate compliance of the proposed beneficial use 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? Yes No

Notes:

The following information was provided by Lane Forest Products:

This application for Beneficial Use follows a general outline as researched by the Oregon Department of Transportation in a series of Roadwaste studies completed by Jay Collins, et al. Additional resources, such as Portland's Bureau of Transportation, which conducted a Street Sweeping Trial in 2005 have also been researched. In Roadwaste: Issue and Options, the characterization of road waste, including sweepings, is discussed in detail and references to all of the ODOT studies by html link can be found in appendix III of Lane Forest Products' application. The author consolidated road waste testing from multiple sources including ODOT, WsDot, Snohomish County, City of Everett and the City of Eugene. As part of the pilot project for the City of Eugene sweepers, Lane Forest Products conducted four tests and they have received an additional 4 years of testing from the City of Portland. These addition tests are in agreement with the general findings in the ODOT study.

In general, sweeping material is a very low risk material and according to the report such "...findings can be stated with confidence":

'Highly volatile compounds are not found in road waste; low flash solvents and benzene are below detection limits Halogenated compounds are rarely observed ... Pesticides are normally below detection levels ... PCB are not found ... the flashpoint of Roadwaste poses no concern.' (Collins, 1998)

Contamination that can be found in sweeper material includes heavy metals, petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs and CPAHs). Most tests for sweeper contamination include the following: TCLP Metals, NWTPH with acid wash, diesel and heavy oil, testing for PAHs and CPAHs.

While the aforementioned contaminants can be found at some levels in sweeper material, the consensus of testing indicates that the risk is low. In Issue and Options, the author states that for heavy metals "...the average contaminant levels observed in road waste are well below the cleanup standards..." For petroleum, it is well documented the difficulty in testing for Total Petroleum Hydrocarbon (TPH) in materials that contain organic material. Even when tested using the NWTPH with acid wash, organic material can show an elevated, false-positive TPH level, but results would seem to indicate that TPH levels are at or near residential cleanup levels. CPAHs represent the greatest risk as clean up thresholds for individual chemicals are lowest for CPAHs. Based on the consolidated information from the ODOT reports, CPAH levels are near and sometimes exceed residential clean-up levels.

CPAHs and most other contaminants "... concentrate in the fines and silt particles...if contaminants are present, they will be in the clays, silt and finer sands." (Collins, et al., 2000). After processing the

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material through the picking process to remove contaminants, the material will be placed in windrows for composting. Batch testing for contaminants will be completed before incorporating the fines into products for protected uses.

The following remediation techniques will be used to reduce contaminants: (1) initial handpicking of contaminants when material arrives, (2) running large batches through a pick station with an airlift separator, (3) and composting after picking has been completed. Composting has been shown to dramatically reduce TPH levels in street sweeping materials. In Portland's Street Sweepings Trials (Jacobsen, et al, 2005), a reduction of up to 50% was shown. In ODOT's testing as part of phase II, they showed a reduction of about 50% TPH levels after screening. They "...suspected that the screening aerates the sweeping debris, increasing natural microbial decomposition of petroleum..." (Ghezzi, et al, 2001). While both of these results would need additional vetting before taken as statically valid, it does give confirmation of our overall plan to screen and compost the sweeper material.

- f. Did the applicant submit adequate sampling and analysis to make a determination of suitability for beneficial use? (Note: The analysis must provide chemical, physical, and biological characterization of the material proposed for beneficial use and identify potential contaminants in the material or the end product, as applicable.) Yes No

Notes:

Lane Forest Products conducted five tests on sweeper material from the City of Eugene. Testing was done for TPH using the NWTPH with silica-gel clean-up, total metals, and PAHs. The result of this testing were provided by Lane Forest Products as Appendix II of their application

- g. Did the applicant provide a risk screening comparing the concentration of hazardous substances in the material to existing, DEQ approved, risk-based screening level values, and demonstrate compliance with acceptable risk levels? Yes No

Notes:

The following information was provided by Lane Forest Products:

Comparing the result of the tests to Oregon DEQ's Risk-based concentration showed one contaminant above the Residential, or lowest, level. In the first test, dated 3/06/12, benzo(a)pyrene had a level of 35.3 parts per billion. This exceeded the urban residential screening level of 34 parts per billion. All other containments, across the first test, were under residential screening levels. In the second test, dated 1/29/13, all containments were under residential. In the third test, dated 8/27/13, benzo(a)pyrene had a level of 222 parts per billion. This exceeded the urban residential cleanup level of 34 parts per billion. Dibenz(a,h)anthracene had a level of 26.7 parts per billion. This exceeded the residential cleanup level of 15 parts per billion. All other contaminants, across the third test, were under residential. The fourth test was performed on the sweeper material that had gone through the composting process. In the fourth test, dated 8/27/13, benzo(a)pyrene had a level of 24 parts per billion. This exceeded the residential cleanup

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level of 15 parts per billion. All other contaminants, across the fourth test, were under residential. These results are very similar to the consolidated data aggregated by Collins in the ODOT studies. One additional test was performed at Soil Control Lab on August 13, 2013 on the finished sweeper material, which reported on the "Total Metals". All metals tested below the EPA Limits.

- h. Did the applicant supply the location or type of land use where the material will be applied, consistent with the risk scenarios used to evaluate risk? Yes No

Notes:

The following information was provided by Lane Forest Products:

Currently there are several possible protected uses of the material: commercially, agriculture, highway, and landfill. Each of these potential uses would place the material away from residential areas. Additionally, each use would replace the need to use virgin material and could be provided at lower cost than existing material. Commercial uses could include industrial and commercial landscaping, building sites, large government projects, or highway use. Highway uses are the same as described in great detail in ODOT's aforementioned studies. These include soil amendments, trench fill and highway shoulder repair. Additional uses of this material would be erosion berms or the seeding of highway areas such as median and shoulders. Agricultural uses would include compost, which has well-documented positive impacts when spread on fields at agronomic rates. We have several existing customers that would use composted sweeper material on their fields, including one large, local coop that could take all of the foreseeable volume. Landfill use has been explored with Lane County Solid Waste. Lane County has expressed interest in using the composted sweeper material as seeding medium when closing a cell at the landfill. They currently use hydro-seeding and we could provide the material, blown into place, with seed of their choosing.

- i. Did the applicant supply an adequate description of how the material will be managed to minimize potential adverse impacts to public health, safety, welfare, or the environment? Yes No

Notes:

Lane Forest Products provided an operations plan with their application that outlined how the material will be managed to minimize potential adverse effects on human health and the environment.

2) Productive Beneficial Use of the Solid Waste

Has the applicant demonstrated that the proposed beneficial use is a productive use of the material by providing information substantiating the criteria listed below? Yes No

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Notes:

The material will be screened to remove trash and to separate the material by size. Trash will be disposed of and the organics will be composted. Heavier sands, silts, and clays may be composted or stockpiled for mixing into products. Organics will be composted under Lane Forest Products' composting permit. A Beneficial Use Determination is being sought for the composted organic material. Products will include soil and compost mixes for use in agriculture and applied at or below agronomic rates. Other potential uses include highway berms and shoulder material, seeding medium for landfills and highways and other commercial applications.

- a. Did the applicant successfully identify or demonstrate a reasonably likely proposed beneficial use for the material that is not speculative? Yes No

This criterion consists of three parts.

i. Identified Use:

Has the applicant clearly stated what the waste is going to be used for, that the waste is compatible with that use and the proposed quantity is necessary?

Yes No

ii. Reasonably Likely Use:

Has the applicant identified, with supporting documentation, the timeframe within which this use is likely to occur?

Yes No

iii. Not Speculative:

For land application - has this material been used at other sites for the same purpose, is the material feasible for use at this site for this purpose, or has the applicant identified a known potential for this use?

Yes No N/A

For uses other than land application - has the material been used in a product before, is the material feasible for use in a product, or has the applicant identified a known potential for use in this product? Yes No N/A

Notes:

Lane Forest Products already has prospective buyers of their composted street sweepings material interested in their products.

- b. Is the use 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? Yes No

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Notes:

Lane Forest Products proposes to use composted street sweeping material to replace valuable raw material.

- c. Is the use in accordance with applicable engineering standards, commercial standards, and agricultural or horticultural practices? Yes No

Notes:

Lane Forest Products plans to sell the material to customers who will use it in accordance with normal commercial and agricultural standards.

3) Effect of Proposed Beneficial Use on Public Health, Safety, Welfare and/or the Environment

Has the applicant demonstrated the proposed beneficial use will **not** create an adverse impact to public health, safety, welfare, or the environment, by providing information substantiating compliance with the criteria listed in the bullet list below? Yes No

Notes:

Lane Forest Products provided an operations plan with their application that outlined how the material will be managed to minimize potential adverse effects on human health and the environment.

- a. Has the applicant demonstrated that the material is not a hazardous waste under ORS 466.00? Yes No

Notes:

The material passes TCLP metals, and the overall concentration of contaminants is low.

- b. Has the applicant demonstrated that until the time this material is used according to a beneficial use determination, the material will be managed, including any storage, transportation, or processing, to prevent releases to the environment or nuisance conditions? Yes No

Notes:

Lane Forest Products provided an operations plan with their application that outlined how the material will be managed to minimize potential adverse effects on human health and the environment.

- c. Has the applicant demonstrated that hazardous substances in the material, if any, meet one of the criteria in the bulleted list below? Yes No

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- Hazardous substances do not significantly exceed the concentration in a comparable raw material or commercial product;
- Hazardous substances do not exceed naturally occurring background concentrations; or
- Hazardous substances will not exceed acceptable risk levels, including persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination.

Notes:

Hazardous substances will not exceed acceptable risk levels, including persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination

- d. Has the applicant demonstrated that the proposed beneficial use will not result in the increase of a hazardous substance in a sensitive environment, such as a park, wildlife refuge or wetland?

Yes No

Notes:

The material will not be used in sensitive environments.

- e. Has the applicant demonstrated that the proposed beneficial use will not create objectionable odors, dust, unsightliness, fire, or other nuisance conditions? Yes No

Notes:

Lane Forest Products provided an operations plan with their application that outlined how the material will be managed to minimize potential adverse effects on human health and the environment.

- f. Has the applicant indicated that the proposed beneficial use will comply with any other applicable federal, state, and local regulations? Yes No

Notes:

4) Public Involvement Evaluation (Note: this is not a Beneficial Use evaluation criterion)
Determine a public involvement recommendation using the current, **Guidance to DEQ Solid Waste Program Staff and Managers on Public Notice & Participation.**

- Is public notice and participation being recommended for this application? Yes No

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Notes: Composted street sweepings resembles the material it will be replacing, and the concentrations of contaminants of concern are low, even possibly lower than in the material it replaces. Public interest in this beneficial use determination is expected to be very low. No public comment period therefore is recommended.