



State of Oregon
Department of
Environmental
Quality

Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: SierraPine, Ltd., Medford Division	
BUD#: BUD20101012	
Solid Waste: Wet Scrubber Mud	
Summary of Proposed Beneficial Use: Saw dust replacement - for use as livestock bedding, agricultural and nursery mulch applications.	
Reviewer: Bob Barrows	Date: 10/7/2011
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 (OAR) 340-093-0280 - 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. Once a beneficial use determination is issued, DEQ no longer regulates the waste as a solid waste as long as the waste is used 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 below and is approved.
- No, the Beneficial Use of this solid waste does not meet all the case-specific performance criteria listed below and is not approved.

Notes: Based on review of all research documents and after gathering physical evidence during a site inspection, DEQ agrees with SierraPine that their Wet Scrubber Mud can be safely used as livestock bedding, and agricultural and nursery mulch. In fact, it appears that use as livestock bedding, followed by composting and/or land application for soil conditioning may be a favorable use of Sierra Pine's scrubber mud as livestock trampling "preconditions" the fine-fibred mud for later agricultural or composting use. (Inclusion directly as a feedstock in a composting process could be a viable option but hardened scrubber mud poses handling and management problems that will need to be mitigated.)

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Case-Specific Beneficial Use Performance Criteria:

DEQ may approve an application for a case-specific beneficial use of solid waste only if all the following performance criteria are addressed: 1) Characterization of the Solid Waste; 2) Productive Beneficial Use of the Solid Waste; and, 3) The affect of the Proposed Beneficial Use on Public Health, Safety, Welfare and/or the Environment.

1) Characterization of the Solid Waste

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? (See tier sections below for detailed characterization information.)

Yes No

Notes: SierraPine submitted sufficient chemical analysis of scrubber mud that demonstrated the material contains no hazardous substances. Sierra Pine submitted a process flow diagram that illustrated the manufacturing process prior to the generation of scrubber mud. Very small amounts of a non-hazardous resin is included as a fraction of scrubber mud. Research indicated the resin acts as a plastic and binds with the wood fibers. Research also indicates the plasticized resin may be biologically decomposed. The resin is not visible in the scrubber mud, but DEQ wanted to see evidence that the plastic does not physically persist in the environment after the scrubber mud is applied as a soil amendment. SierraPine organized a tour of a dairy farm which had used Scrubber mud for several years. DEQ staff observations of scrubber mud disposition throughout the farm, including as a soil amendment and adjacent composting facility demonstrated the scrubber mud may be utilized beneficially and meets compliance with OAR 340-093-0280. DEQ saw no evidence of residual plastic bits. See below for details.

Was the following information submitted for DEQ review and how adequate was it?

Tier 1 Applicable Not applicable

- 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: SierraPine manufactures Medium Density Fiberboard (MDF); composed primarily of compressed wood fibers. MDF production generates approximately 6000 tons per year of a waste material called wet scrubber mud. The scrubber mud consists primarily of finely ground wood fibers collected in the wet scrubber filtration system. A process flow diagram shows where the resin is introduced in the MDF production process.

- Did the applicant provide an adequate description of the proposed beneficial use and justify how the proposed use is beneficial?

Yes No

Notes: Saw dust, wood chips and other woody materials are regularly used as mulch, livestock bedding and other agricultural uses. The Oregon Dept. of Agriculture submitted a letter indicating the Scrubber Mud has been very useful in the past as livestock bedding and indicating several farms have requested continuation of supply for bedding and other agricultural purposes. A site visit to a dairy arranged by SierraPine, demonstrated that the material can be put to all proposed uses in a beneficial manner.

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- 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 Scrubber mud is essentially the same as other woody materials used for agricultural purposes. Scrubber mud is composed of ground wood particles and the properties of the wood particles in the scrubber mud (liquid absorption, bedding cushioning and soil organic matter amendment) will be utilized for the various beneficial uses.

- 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: Documentation submitted with the application and site visits to the SierraPine MDF mill and a farm that has used the scrubber mud demonstrated compliance with the performance criteria in OAR 340-093-0280. See 9/9/2011 site visit report for details of site visit.

- If required, did the applicant provide any other DEQ required information to evaluate the proposal?
 Yes No

Notes: SierraPine submitted additional information in response to DEQ questions. The information was very helpful in clarifying the generation of the scrubber mud in the manufacturing process and describing proposed beneficial uses. In addition, SierraPine staff arranged for a site visit for DEQ staff to a farm that for several years, had utilized the scrubber mud as bedding, compost feedstock and soil amendment.

Tier 2 Applicable Not applicable

- Did the applicant submit all the information required for a Tier 1 application?
 Yes No
- 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: Analytical results for trace metals and semi-volatile chemicals were submitted and indicated the scrubber mud is not a hazardous waste and does not contain hazardous substances that would be harmful to human health or environmental media. In addition, SierraPine submitted a Material Safety Data Sheet for the resin used to bind wood in Medium Density Fiber Board (MDF). Both SierraPine and DEQ located research that indicated land application of scrubber mud is not likely to pose a threat to public health or the environment.

- When applicable, 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

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Notes: Not applicable. This was not necessary as this material is primarily wood fibers. However, since small amounts of a resin is included in the scrubber mud, DEQ did compare the trace metal and semi-volatile chemicals analyses results to DEQ risk-based screening level values and determined the scrubber mud levels were well below risk levels of concern.

- When applicable, 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: SierraPine indicated the material would be used in agricultural settings.

- When applicable, did the applicant supply 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)? Yes No

Notes: Not applicable. SierraPine will make scrubber mud available for general agricultural use.

- 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: SierraPine supplied a copy of an information sheet that will be provided to all users that explains safe management practices to minimize nuisance dust and adverse environmental and public health impacts.

Tier 3 Applicable Not applicable

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

Notes: A site visit to a dairy farm and composting facility provided a visual demonstration that scrubber mud can be appropriately used for the agricultural uses proposed. Scrubber mud may need some special management due to hardening of the material after time in storage. Because of the fine texture of the wood fibers, the mud will harden as it dries. For some use applications, special "conditioning" may be necessary to crumble the material to a form that can be used.

- 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.

1. 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

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2. Reasonably Likely Use:

Has the applicant identified, with supporting documentation, the timeframe within which this use is likely to occur (e.g., zoning info, master plan for development, letters from local jurisdictions, etc)?

Yes No

3. 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 at this site?

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: In order to ensure the scrubber mud is used beneficially, SierraPine plans to control use of the scrubber mud by: 1) screening users of the material to assess ability to appropriately manage and use material; 2) track users of scrubber mud by maintaining a list of all users; the list will be available for DEQ review; 3) minimize the number of users and follow-up with users to ensure appropriate management; 4) have users sign an agreement contract that specifies management protocols/requirements.

- 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

Notes: Scrubber mud has a history of being successfully used for: 1) agricultural and horticultural mulch and soil amendments and 2) livestock bedding.

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

Notes: SierraPine will provide scrubber mud to farms for agricultural uses. Appropriate agricultural use will be the responsibility of the recipient farm. SierraPine will provide users with information regarding appropriate use.

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: SierraPine has demonstrated through chemical analysis that scrubber mud material does not contain hazardous substances. SierraPine will make scrubber mud available for agricultural use by farms and nurseries and has developed protocols designed to help ensure compliance with local, state and federal requirements. Details are included below.

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

Notes: Chemical analysis and knowledge of the manufacturing process demonstrates the material is not a hazardous waste.

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- 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: The two primary mismanagement issues for scrubber mud may be: 1) speculative accumulation of scrubber mud and 2) nuisance dust. While SierraPine cannot control individual users actions, SierraPine has demonstrated they will implement reasonable measures to help ensure appropriate management of scrubber mud prior to its agricultural use. Those measures include: 1) provide appropriate management information to users; 2) screening users of the material to assess ability to appropriately manage and use material; 3) track users of scrubber mud by maintaining a list of all users; the list will be available for DEQ review; 4) minimize the number of users and follow-up with users to ensure appropriate management; 5) have users sign an agreement contract that specifies management protocols/ requirements.

- Has the applicant demonstrated that hazardous substances in the material, if any, meet one of the criteria in the bulleted list below?
 Yes No
 - 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: Scrubber mud does not contain hazardous substances.

- 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: Scrubber mud does not contain hazardous substances.

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

Notes: The two primary mismanagement issues for scrubber mud may be: 1) speculative accumulation of scrubber mud and 2) nuisance dust. While SierraPine cannot control individual users actions, SierraPine will implement reasonable measures to help ensure appropriate management of scrubber mud prior to its agricultural use. Those measure include: 1) provide appropriate management information to users; 2) screening users of the material to assess ability to appropriately manage and use material; 3) track users of scrubber mud by maintaining a list of all users; the list will be available for DEQ review; 4) minimize the number of users and follow-up with users to ensure appropriate management; 5) have users sign an agreement contract that specifies management protocols/ requirements.

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

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Notes: SierraPine cannot ensure a user will comply with other applicable regulations, but, in the Scrubber Mud Use agreement contract, SierraPine has included a requirement for users to comply with all other regulations.

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

Notes: Since farms regularly use saw dust and wood chips, delivery of woody scrubber mud should not be an issue of public interest. DEQ considers public interest to be low for this proposal, therefore no public involvement process will be conducted.

