

Beneficial Use of Solid Waste Determination Evaluation Form



State of Oregon
Department of
Environmental
Quality

Applicant: TENEX Management Ltd.

BUD No.: BUD-20120301

Solid Waste: Spent foundry silica sand with some asphalt, rock and soil

Summary of Proposed Beneficial Use:

TENEX Management Ltd. (hereinafter TENEX) is proposing to screen and utilize approximately 1,509 tons of (primarily) spent silica sand as an ingredient in the construction of 2' by 5' concrete Econo Blocks, a form of Jersey Barrier. TENEX is proposing to use these blocks on-site as ore containment bin walls.

Reviewers: Bruce Lumper and Bill Mason

Date: July 26, 2013

Tier: One Two 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) 340-093-0260 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. Once a beneficial use determination is issued, DEQ no longer regulates the waste as a solid waste, as long as the material 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: TENEX submitted the information necessary for DEQ to make a beneficial use determination. DEQ evaluated this information against acceptable risk criteria, and surface and ground water interactions.

**Beneficial Use of Solid Waste
Determination Evaluation Form**

Applicant: TENEX Management Ltd.
BUD No.: BUD-20130301
Solid Waste: Spent Silica Sand
Date: July 22, 2013

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, and welfare or on 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: TENEX provided the necessary description of the material and how it is proposed to be used.

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: The material primarily consists of spent silica sand which was generated off-site, some virgin silica sand from on-site, plus dirt and rocks from the Schnitzer steel recycling yard, concrete and asphalt from the TENEX yard, and asphalt from on-site tank walls. The quantity is approximately 1,509 tons.

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

Notes: TENEX proposes to use the spent silica sand as an ingredient in the construction of concrete Econo Blocks. This sand would replace the virgin sand that would be needed as an ingredient in the construction of these types of blocks. The blocks would be used to form the walls of on-site ore storage bins.

- 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 material is similar to the commercial sand used with cement in the making of concrete. Some of the material contained metals contamination that exceeded DEQ clean-fill values, but the material is safe for use in the construction of concrete Econo Blocks.

- 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

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Notes: TENEX provided DEQ with a list of materials and the processes from which they were derived. They also provided DEQ with chemical testing results to support their knowledge of their material.

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

Notes: In addition to the original application, the applicant provided the results of laboratory analytical testing of the material, including a comprehensive list of metals results.

Tier 2 Applicable Not applicable

- Did the applicant submit all the information required for a Tier 1 application? Yes No

Notes: See notes for Tier 1.

- 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: Yes, as above.

- 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

Notes: TENEX provided a comparison of chemical results to DEQ-approved, risk-based screening levels.

- 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: The Port of Portland is the site owner. TENEX is the site Lessee. Milbank Materials USA is the Facility Operator. The address of the site is 15540 N. Lombard, Portland, OR 97203.

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: This is not a site-specific land application proposal.

- 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

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Notes: The proposal is for the material to be encapsulated in concrete blocks – Econo Blocks – which will be utilized on-site.

Tier 3 Applicable Not applicable

- Did the applicant submit all the information required for a Tier 1 & Tier 2 application?
 Yes No
- Did the applicant provide an adequate discussion of the justification for the proposal?
 Yes No
- Is there an estimated length of time that would be required to complete the project, if it is a demonstration?
 Yes No
- If it is a demonstration project, are their methods proposed to ensure safe and proper management of the material?
 Yes No

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: See notes below.

- 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

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

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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: The silica sand is feasible for use in the proposed product as it will be used to replace virgin sand in the making of concrete Econo Blocks.

- 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: This spent silica sand will be an effective substitute for virgin sand in the concrete making process. Using the spent silica sand for this purpose would not constitute disposal under the beneficial use rules.

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

Notes: This spent silica sand will be used in accordance with applicable engineering 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: See notes below.

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

Notes: TENEX demonstrated that contaminant concentrations in the spent silica sand are low enough that the material is not classified as a hazardous waste.

- 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 spent silica sand is currently being stored under cover in the warehouse where the Econo Blocks will be constructed.

- 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

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- 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: DEQ's evaluation has concluded that although the material contains metals concentration that exceed DEQ clean-fill values, the material is clean enough to be used as a sand substitute in the construction of concrete Econo Blocks.

- 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: TENEX plans to use the Econo Blocks at their own facility, and will not place them in sensitive environments.

- 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 proposed use is for the materials to be encapsulated. Therefore, once the materials are processed into the Econo Blocks, there should be no odors, dust, or other nuisance conditions being produced.

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

Notes: With the determination that the spent silica sand is not hazardous waste and the issuance of a Beneficial Use Determination for the construction of Econo Blocks, that should meet all applicable requirements for the proposed use of these materials.

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: DEQ will provide a public notice that DEQ intends to approve this beneficial use.